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The Australian Gardener

A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry.

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No. 1 transmission by post as a Newspaper.)

Wednesday, July 1, 1908

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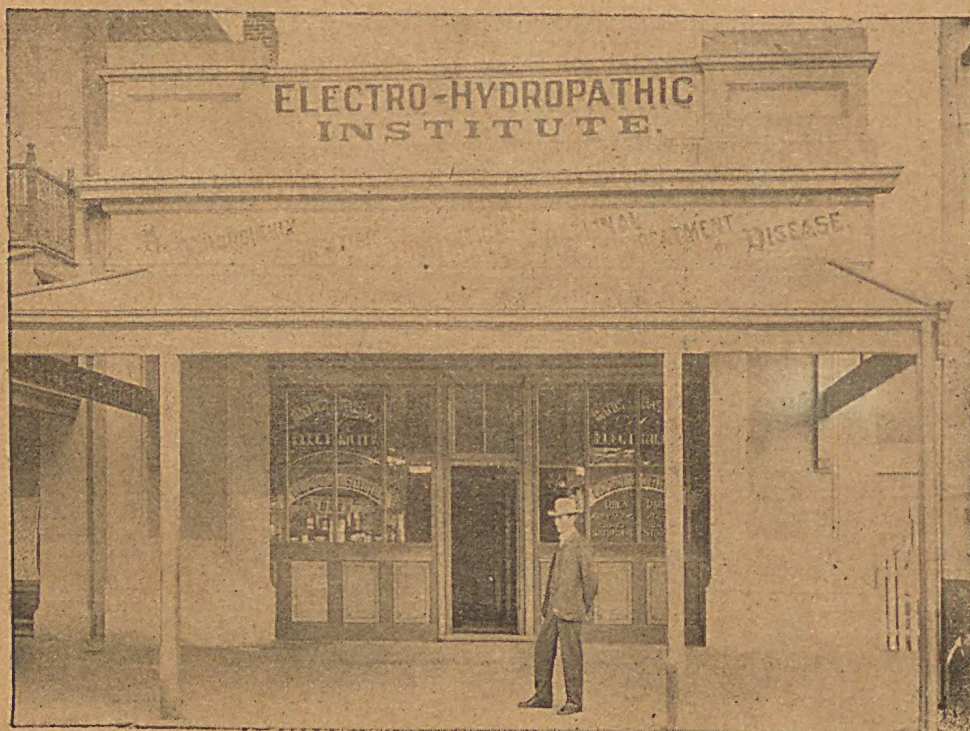
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July Number of

1908

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry).

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EDITORIAL

"THE AUSTRALIAN GARDENER" for this month sustains its reputation as a first-class publication of interesting instruction. The advertising columns are brim full of information upon the needs of the producer and the consumer. To bring these two closer together to their mutual advantage is one of the chief objects of the publication, and as it succeeds in this there is not only satisfaction to the parties immediately concerned but also to "THE AUSTRALIAN GARDENER" as the medium.

The articles are carefully chosen for accurate and reliable information of a seasonable nature. Notes on the flower garden will be found usually instructive. But above all things the speciality this month no doubt is dealing with weeds. This is especially the case in new ground that has been turned up for the first time. The turning process suist the weeds just nicely, they like it, and grow just beautifully. The garden is gone over carefully and every bed looks nice for the young seedling and bulbs coming on apace and everything feels snug and comfortable after the knee-stiffening and back-breaking process of picking out every weed. But if neglected for a week just what happens is that the young weeds have come again, almost breaking their young necks in struggling through the soil to face whatever sun and rain there may be. They love the effort of growing, and if our highly trained and well nursed garden beauties had half the vigour of their despised sisters, the weeds, it is more than likely that gardening would be more popular, the fact being, that flowers could

be had without so much trouble, which argues that the average man and woman are rather a lazy lot. An article by Mr J. Cronin on the Abutilon, or Chinese Lantern, is very interesting. This shrub was formerly thought a great deal of and is always found in the old established gardens. But it seems to have gone out of fashion somewhat. This is rather a pity, because the flowers are quaint and pretty, and some of the shrubs shapely. As a rule, however, the straggling habit of the shrub is against it as a popular grower. The varieties mentioned are good, and if dealt with according to instructions in the article, will give pleasing results. A paragraph upon the violet will go straight to the heart of every reader.

For the farmer the articles upon the value of ensilage, sheepfarming in South Africa, and high land values will all be found opportune. It is just now when hay and chaff and bran are so high in value, and before the green feed gets much body into it, that the farmer needs to know the true value of a good stock of feed. Eusilage is the best means of storing the overplus of feed when at its strongest, and always carries full value for the trouble.

It will be news to a good many people that Germany grows more potatoes than any other European country. The total runs up to 45 million tons. This production is put into spirit, starch, and pigs, in addition to the house consumption.

An article by Mr P. H. Sutor on a typical dairy farm is written in his usual free and easy fashion, and contains just the right kind of information from a farm, on the spot. Here he tells of the best

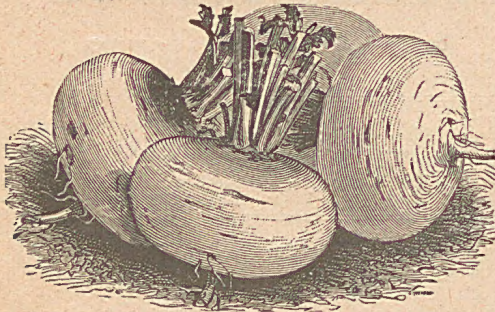
kind of cows to keep, which means that any cow that cannot supply two gallons for ten months in the year is not worth keeping. Then the right kind of feed to produce the milk is of prime consideration and equal in importance comes the gentle handling of the herd the care of shelter, and always cleanliness.

For poultry raisers the articles are continued on diseases in fowls, and the ever popular egg-laying competitions have a place in the reading matter.

Now that the orchard crops are gathered in there is a little respite from the stress of anxious work, but in the orchard work is like that of the true domestic housewife who is never finished. While the weeds are growing in the orchard to be turned in later for green manuring, the orchardist is at work with his snips, clipping out the wood that grows to no profit. In his pruning operations his eyes are here, there, and everywhere for fruit buds. A long article on pruning very properly opens with the advice that the operator should have a clear conception of what is required and what will be the resulting of each cut he makes. He should know by the strength of the acre just what quality of fruit it is capable of producing and ripening without overracing its strength or running risk of damage from over-burdened boughs.

Our young readers now continue their claim upon our space. Having given them a taste of something quite as good as games, the young folks are looking forward each month to their share in the "Gardener." Here we give them Nature's Lore, the Marvels of Pond Life, and the Wonders of Little Things.

The Vegetable Garden.



EARLY STONE TURNIP.

Operations for the Month.

The month of July is generally very cold, especially in the elevated parts where there is but little growth in most plants, but for all that they should be attended to and kept weeded, for weeds of some kind generally manage to grow. All spare ground should be turned up with a spade and be left in a rough state, so as to expose as much surface as possible to frosts, rain, snow, and sun. Dig the ground deep, and if it be not sufficiently rich it must be well manured, with rotten farmyard manure made from the droppings of animals, except the pig, mixed with straw, old leaves, or any other vegetable matter. The more of the liquid excrement of animals that can be obtained and mixed with the manure the better it will rot, and the more valuable it will be.

Asparagus—Plant out asparagus roots, dress the beds with a little salt, and lightly fork in the top dressing.

Jerusalem Artichoke—The ground should be well dug, well drained, and well manured. Small tubers may be planted whole, and large ones may be divided and planted if supply is scarce. Plant about 5 inches deep, about 1 foot apart, in rows 3 to 4 feet apart.

Bean, French—In the warmest parts of the State it is quite possible to grow this vegetable all the year round, but it is useless sowing it where frosts occur.

Broad Bean—Sow a few rows for succession during the month. This plant requires deep soil to enable it to come to the greatest perfection, for its roots will extend to a considerable depth when they have good open deep soil. At the same time the soil should be well drained, as excessive moisture is injurious to it.

Broccoli—Seed may be sown largely in small beds and the seedlings transplanted when the young broccolis are large enough. Sow thinly in little drills and water occasionally, and on no account allow the beds to become very dry.

Cabbage—A little seed may be sown in a seed-bed or box. Sow in little drills 2 inches or so apart and do not use too

much seed. Try several kinds of seed to ascertain which variety succeeds best in your district. If you have any good strong seedlings transplant them to some well-manured ground that has been prepared for them.

Cardoon is a vegetable worth testing for it is much liked by some persons. It belongs to the Artichoke family, and somewhat resembles that vegetable, but the tender leaves of the heart of the plant are eaten and not the flower buds as in the case of the artichoke. The seed is sown in spring and the seedlings are afterwards transplanted to well-manured beds, but this transplanting must be done very carefully or else the seedlings will die. It is the custom to sow seed in well-manured trenches, like celery trenches, and when it comes up to thin the plants out to about 18 inches or 2 feet apart. The plants need good supplies of water and rich soil. When they have attained a good size they will need earthing up like celery in order to blanch their hearts. Leaves or straw should be tied round each plant before earthing up so as to prevent any soil dropping in amongst the leaves.

Carrot—Sow a little seed in drills about 1 foot to 18 inches apart. Thin out when the plants are long enough and quite free from weeds.

Cauliflower—Sow a little seed to keep up a supply and plant out any strong young seedlings you may have on hand.

Cucumber—In the warm coast climates sow a little seed in a sheltered position. It would be advisable to protect the bed at night with some bagging or other material, for fear of chance frosts or severe cold.



GOLDEN DAWN CAPSICUM

Capsicums or Chillies—May be sown and protected as recommended for cucumbers.

Egg Plants—Seed may also be sown in the warm districts.

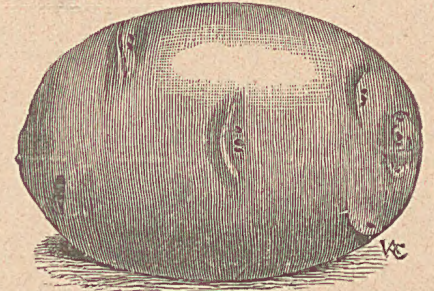
Leek—Sow a little seed to keep up a supply. Plant out good strong young leeks to well-manured trenches and keep them well watered if the weather and soil are dry.

Lettuce—Sow a little seed and plant out seedlings to well-manured ground.

Onion—Sow a good quantity of seed on well-manured and well-drained narrow beds where the seedlings can be weeded easily without treading amongst the plants. Sow in drills and cover the seed very lightly with fine soil.

Parsnip—Sow a little seed.

Peas—These may be sown largely in rows 3 to 4 feet apart according to the height of the variety, for the higher it is likely to grow the wider apart the rows should be.



POTATO, BEAUTY OF HEBRON

Savoy—Sow a little seed in a seed-bed. If any strong seedlings are available they may be planted out. The soil should be well manured before planting.

Spinach—Sow a little seed in drills 2 feet apart and thin out the plants when they come up to about 1 foot from plant to plant.

Swede Turnip—Sow a little seed in drills.

Tomato—Make hotbed, with portable frame over, beginning of month.

Turnip—Sow a little seed in drills.

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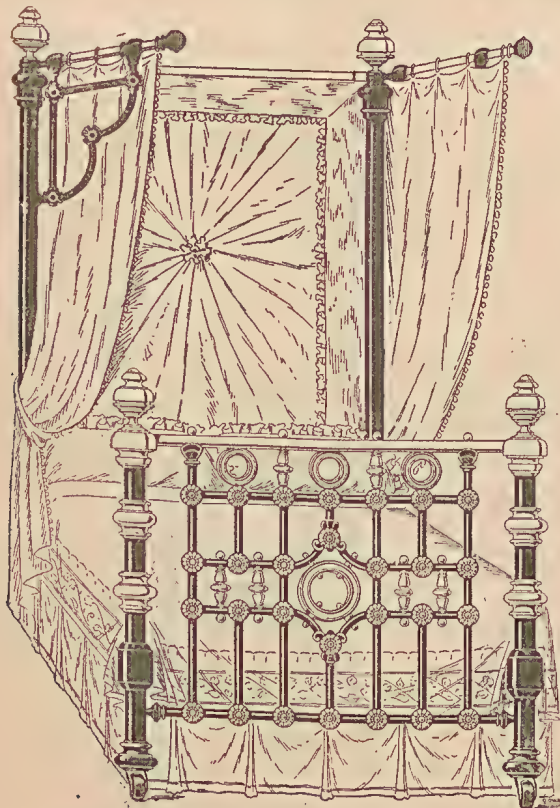
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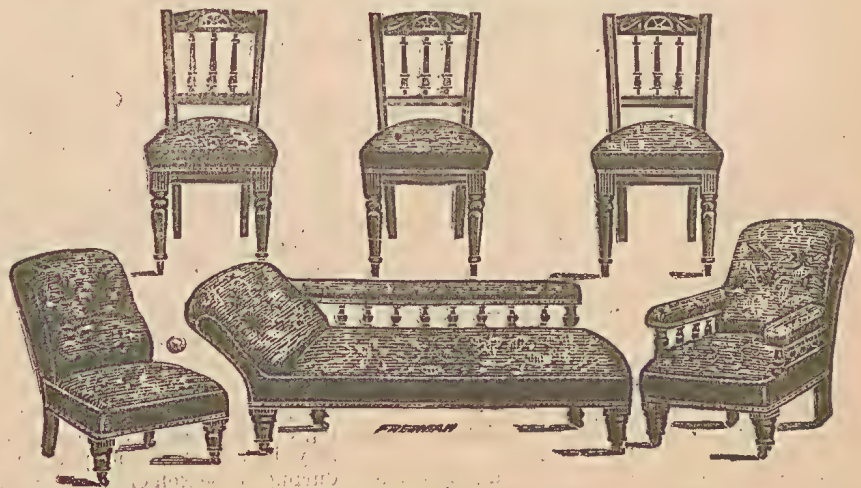
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The Flower Garden.



SALPIGLOSSIS VARIABILIS GRANDIFLORA.

The Abutilon.

[By J. Cronin.]

The species and varieties of Abutilon cultivated in gardens are evergreen shrubs. The genus also includes herbs or annuals that are of botanical interest. The habitat of the majority of Abutilons is Brazil and adjacent parts of South America, a few species being found native in Central and North America, and Australia. The name that the abutilon is commonly known by—the Chinese lantern flower—would suggest the occurrence of the genus in China or other Asiatic countries, but it is on account of the resemblance of the flowers of some of the species to the well-known Chinese lanterns that the popular name is due.

Many of the abutilons are highly ornamental shrubs, varying from four to eight or ten feet in height; the foliage in some

of the species and garden raised varieties is distinctly palmate in character, the flowers, borne on long slender stalks, being bell-shaped and pendulous or drooping. In many instances the hybrid varieties are a distinct improvement on the original species in habit of growth, size and substance of blooms; the coloring of the blooms is also more varied and beautiful. The genus now includes kinds and varieties that produce flowers of shades of orange, yellow, red, pink, rose, and white; many are distinctly veined or marked with other shades of color. With many kinds the foliage is their principal value in schemes of border decoration, being beautifully variegated. Abutilons are hardy in most parts of the State and being of easy culture are worthy of much more care and attention, and extensive planting. They are well suited for planting in large groups or borders as specimens or subshrubs, endure a deal of drought, and provide a fine effect when well established.

CULTURE.

The soil most suitable is a rather light loam, well drained, and moderately manured. Abutilons, however, will thrive fairly in most garden soils where the ordinary routine phases of cultivation that make up fair management are practised. Excessive manuring, or excessive watering when the soil is rich, will promote rank growth that will fail to bloom satisfactorily, and, in the case of the variegated forms, cause them to revert to the green. They are also accommodating in regard to position, and may be planted with a prospect of success in any aspect excepting those excessively wind-swept. Plants may be set out from pots at any time during the season of active growth, spring or early autumn being preferable. They will require to be watered during dry hot

weather until established, and will benefit by the application of a mulch if the conditions are severe.

Pruning is necessary to ensure well-balanced plants. When young plants are being formed pruning consists mainly in pinching, or lightly topping, any shoots of excessive vigor. The object is to check these and permit the weaker shoots to overtake them. When the plants are formed they occasionally become crowded in the centre. A moderate amount of thinning is required so that light and air are admitted to all parts of the plants. Old plants are liable to become tall and straggling in habit and should be pruned in winter, cutting the shoots well back. The result on healthy plants is the production of vigorous growth that requires to be regulated as in the case of the young plant.

Abutilons are propagated from cuttings and seeds. Cuttings of the young shoots inserted in pots of sandy soil, and placed in a cold frame, root readily. When the cuttings are rooted they should be potted, and, when established, planted out. Such plants are not likely to receive much check by the transplanting and with a little care in pruning usually develop into nice specimens. Cuttings of the strong shoots will also root readily in the open ground



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if taken and inserted in sandy soil during winter. These may be allowed to grow in the nursery until autumn, and then lifted and transferred to their flowering quarters. Such plants require to be pruned hard to compensate for the loss of feeding roots destroyed in the removal. Seeds should be sown in pots or boxes of light soil in spring. The plants should be potted when about an inch in height, and grown in pots until they are about a foot in height, when they may be transplanted into the beds or borders. If a good strain of seed is sown improved varieties may result.

DESIRABLE VARIETIES.

A number of fine varieties are procurable. A few of the best are:—Boule de Neige, Driven Snow, Fleur de Neige, Golden Fleece, Aurelia, Sydney Belle, Brilliant, Emperor, Scarlet Gem, Cerise unique, Violet Queen, Rosceflorum, and vexillarium, the foliage of each being green. Varieties in which the leaves are variegated are:—Sawitzii (rather delicate), Souvenir de Bon, Aureum variegatum, Darwinii tessalatum, and vexillarium variegatum.



GROUP OF NASTURTIUMS.

THE VIOLET.—Think of the numerous gifts that Nature has bestowed upon the violet. She has given to it a form so frail—so elegantly graceful—and a perfume both mild and sweet. The rare yet beautifully delicate color seen amidst the clustered green leaves is a striking contrast. Nothing more handsome, or so exquisitely lovely is there than the meek violet flower. In all ancient readings, and in all 'Languages of Flowers,' no writer has ever bestowed any virtue but that of modesty on this plant. The very flower itself, while growing and blooming in the garden, is a true picture of modesty. It stands so erect, so dignified, among the fatherly green leaves that surround and protect it. Violets must not be exposed to all roughness of the weather, but they should be sheltered a little, and kept out of the wind and rain as much as possible; and earth that is moist and rich will all tend to stimulate their growth. The violet has always a sad expression, even on bright, sunny days when the lilies by its side are smiling. The violet will appear to be in a glorious dream-like land, thoughtful and sad; not like many other flowers that have always a happy look. But this adds more to their beauty, and makes the study much more deep and interesting.

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Notes for the Month.

All sorts of herbaceous plants—that is, those plants which are perennial and which lose their stems every year, although their roots are alive—may be divided and replanted. To this class of plants belong chrysanthemums, delphiniums or perennial larkspur, perennial phloxes, and some of the salvias. The term 'perennial' means a plant that lives for over two years.

Roses, carnations, pinks, and all kinds of hardy plants may be transplanted, and the garden should have a dressing of rotten farmyard manure forked neatly in, after it has been well cleaned up. But great caution should be taken not to disturb any bulbs that may be just starting into growth. In the warm parts of the State, which are not subject to frosts, seeds of tender annuals may be sown, as well as hardy annuals if the latter were not previously sown. If sown in cool districts they will need protection from frosts. If no means of protection are available the sowing had better be delayed.

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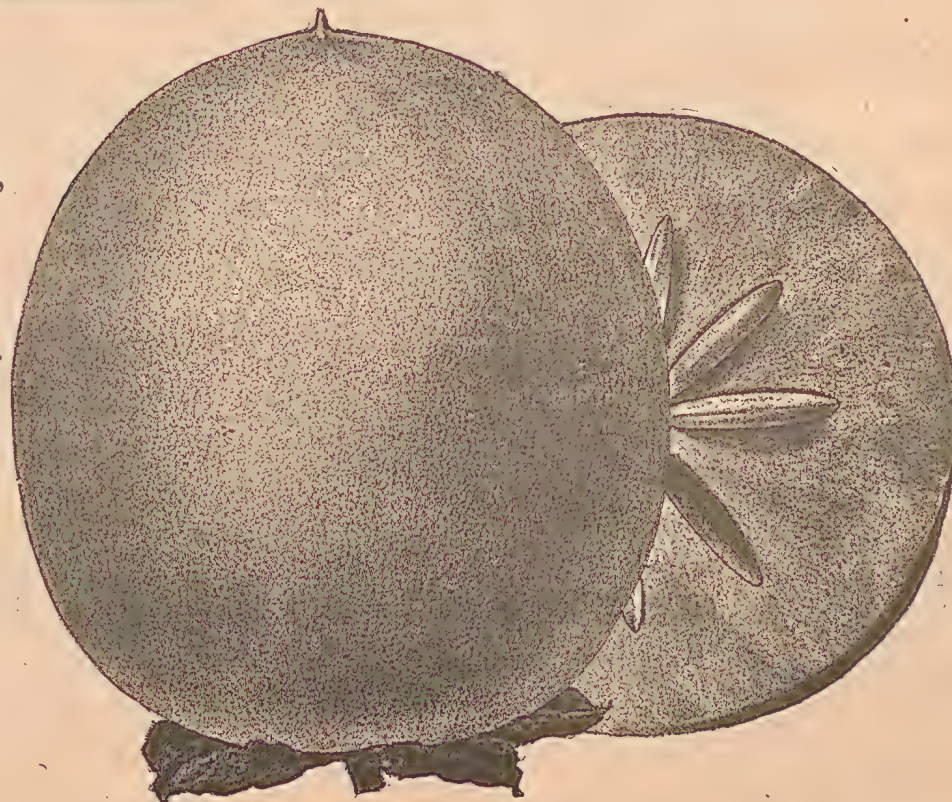
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The Late General Buller.

A Tribute to the Memory of the late General Sir Redvers Buller, V.C., etc., etc., by Sergeant-Major Richard J. A. DOHERTY, Royal Horse Artillery Representative of this Journal.

In the month of December, 1899, I arrived at Frere, one of the advanced positions of the British forces in Natal, under the command of General Sir R. Buller. After a short while the forces forming the Ladysmith relief columns advanced on Chieveley, about six miles from Frere and a few miles from the Boer positions at Colenso.

On the morning of the 15th December we advanced on Colenso, opening a heavy fire on the Boer positions. We bombarded every place that looked like entrenchments for two hours. After this time the infantry advanced, line after line, and extended widely. Instantly Mauser and heavy gun fire commenced operating from the Tugela heights and the fort on our right flank. Here Buller, with fine courage, struggled to fight his way to the relief of the besieged town. At Colenso we lost 1,200 officers and men and 11 guns, which was no fault of Buller's. On January 16 he commenced the movement which resulted in the capture of Spion Kop, a mountain crest over 7,000 feet high, won at a cost of 1,700 men. On February 8 Buller advanced once more, crossing the Tugela at Molen's Drift, and carrying

Val Krantz gallantly with the bayonet, afterwards retiring across the Tugela. During those movements the fighting, valour and endurance of our soldiers were not exceeded by anything recorded in British military history. February 14 preparations to attack Mount Inhlave, which was captured, also Monte Cristo, and so contending for every part of the way.

With the capture of Pieter's Hill the strength of the Boer defence was shattered; and on February 28 Lord Donald, with the advance guard of Buller's cavalry, rode into the town of Ladysmith. From the hills the British cavalry came at speed just when the sun was setting. As they advanced the stern challenge of the outpost was heard, 'Who comes there?' 'The relieving army,' was the reply, and thus came the end of the siege of Ladysmith.

It is ungenerous to dwell on the temporary failure in tactics of General Buller, when we know he recovered fame by the skill, coolness and persistency of his efforts to relieve Ladysmith. But the plain truth was that the new weapons with which modern science had armed the soldier demanded new tactics. Much nonsense has been talked about the disparity of the British Empire and the two Dutch Republics. It must be remembered the strength of each combatant should be measured by the troops actually on the field of conflict.

THE OLDEST SHOE FIRM IN THE STATE.

Messrs. Alex. Dowie & Sons, of 63 Rundle street, Adelaide, whose name appears in our advertising columns, has the distinction of holding the above title, and on enquiry we may find it to be the oldest in the Commonwealth, having been founded in 1851 by Mr. Alex. Dowie, who at the age of 81 still is able to come into business every day. The chief and main aim of the firm is to give the wearing parts of their shoes special attention, and with this they have employed the best of help to give everything that could be desired in the way of style and fit. Trade with this firm has steadily increased until, owing no doubt to the public discovering the value in their footwear, they are now undoubtedly disposing of more fine shoes locally than any other State manufacturer. The firm employ five travellers in this State, who wait on any country store that may be in need of their goods, with complete sets of samples. Grit, determination and honesty are the great things of success.

'What became of the little kitten you had here,' asked a lady visitor of the small girl. 'Why, haven't you heard?' 'No; was it drowned?' 'No.' 'Lost?' 'No.' 'Poisoned?' 'No.' 'Then whatever did become of it?' said the lady. 'It grew up into a cat,' was the reply.

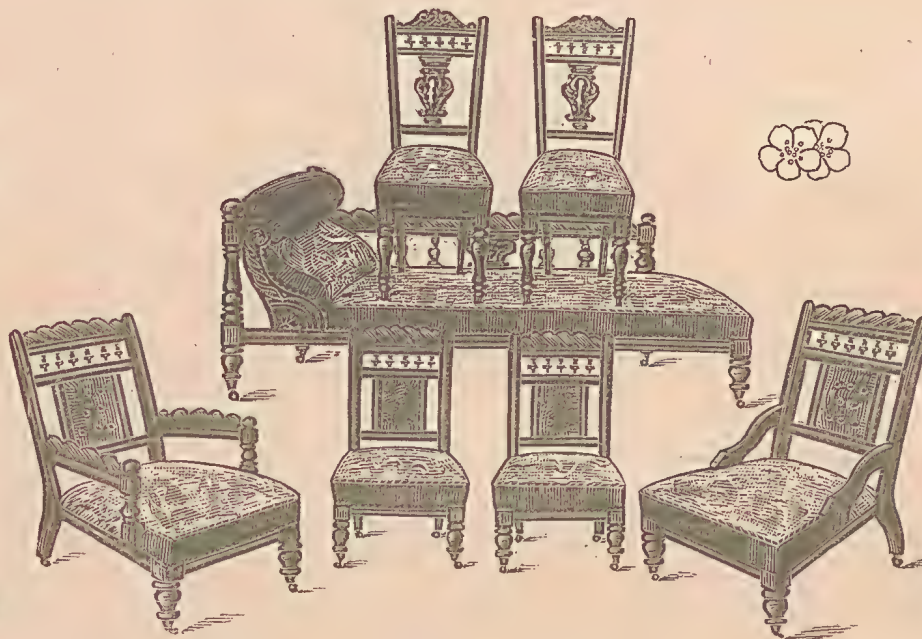
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*Fancy Vestings in
 great variety.*

*Ladies' Riding Habits
 and Costumes.*

Call and inspect or send for
 Samples.

80 Rundle St., Adelaide



A Typical Dairy Farm.

MILK-PRODUCTION AT FULHAM.

[By P. H. SUTER, Government Dairy
 Expert.]

Situated some five miles from Adelaide, in the fertile country known as the Reeds, is an excellent example of a well-conducted dairy business. This is the holding of Mr. A. Stanford, whose home is situated close to the banks of the Torrens River. The land is a rich, black, loose, sandy loam, upon which are grown excellent crops of green fodder for milk-production. The crops mainly grown are lucerne, maize, and barley. The land is all carefully graded, and heavy production is forced by irrigation.

Mr. Stanford has in all 54 cows, and had, at the time of my visit, 40 at work in the bails. These were principally of Shorthorn, Jersey and Ayrshire blood, and were giving an average yield of $2\frac{1}{2}$ gallons per day. He demands that his cows must average 2 gallons per day for a period of between nine and ten months, and this is just what should be looked for from milch cows under the favorable conditions of food supply and shelter provided by the owner. The yield is in strong contrast to many cow-owners or would-be dairymen, who are milking about 20 cows for a total daily return of about 14 to 16 gallons.

In the course of our conversation Mr. Stanford expounded the following sound rules:—

1. Keep good cows.
2. Feed your cows judiciously if you want to make a success of dairying.
3. Keep records of each cow's yield.
4. Pass the death sentence upon those which do not reach your standard of production.
5. Arrange to keep your heifers from your best cows.
6. Carefully see to the shelter and water supply.
7. Gentle handling of your cows by the milkman.
8. Strict attention to cleanliness in your business generally.

These are remarks from a man who has made dairying a success, and only by

strict observance of the foregoing rules has he been able to do so. Let anyone carefully examine the management of 80 per cent. of our dairy-herds in this State, and he will, I fear, find that frequently they do not reach the proper standard. I am certain that in most cases it will be found poorer dairymen exist than what may be termed poor cows. If our dairymen would give their cows a fair show, by giving them a bellyful of milk-making food, we would find much more prosperity among them.

The method of irrigating adopted by Mr. Stanford is pumping from an artesian supply, and in another case from the Torrens River. At the pumping station is a $9\frac{1}{2}$ h.p. oil engine and a locally made pump. This lifts 15,000 to 20,000 gallons of water per hour, and it requires about 150,000 gallons of water to irrigate one acre, which is the area covered daily at certain seasons of the year.

The maize is sown in drills 2 feet 6 inches apart. Until well up, and the rows nearly meeting, it is kept cultivated between, so as to encourage growth. The lucerne crops are flooded from the fluming drains running overhead and made of galvanized iron, to which is attached other piping or canvas hose in order to direct the water over any portion of the land requiring to be irrigated. The lucerne crops are equal to anything grown in the Commonwealth; and as this has been

(Continued on Page 14).

BANNERMAN'S
Canadian Pine Cough Syrup



A GOOD CATCH.
 FOR THE CURE OF ASTHMA, BRONCHITIS, WHOOPING COUGH,
 CROUP, INFLUENZA, HOARSENESS, COLDS,
 AND ALL PULMONARY COMPLAINTS.

THE BANNERMAN DRUG & MEDICINE CO., MONTREAL, CAN.

To Encourage Art

THE Proprietors of BANNERMAN'S CANADIAN PINE COUGH SYRUP offer **SIX PRIZES**, viz., a

First Prize of £2. Second Prize of £1.
 Four Prizes of 10s. each.

For the **Best Hand-colored Specimens** of the famous **Canadian Pine Canoe Scene** advertisement, on view on almost every hoarding and in every Chemist's or Storekeeper's shop. There is **no entrance fee**. An Outline Design, on paper suitable for water-color tinting, is enclosed in every package containing a bottle of CANADIAN PINE COUGH SYRUP, and this design is to be tinted by *bona fide* scholars of our public schools only. The artist who drew the original will be the judge of the scholars' efforts, and according to his decision the prizes will be awarded as above. The Outline Design for tinting purposes can only be obtained from inside the Cough Syrup Packages. All tinted designs must be completed and forwarded to Agents' address, given below, not later than **October 1, 1908**, at which date competition closes. This will give ample time for scholars in most remote districts to compete for the prizes. Results will be published within a week or two after that date. Further particulars enclosed with each bottle of CANADIAN PINE COUGH SYRUP.

BANNERMAN'S
Canadian Pine Cough Syrup

PRICE **1/6** PER BOTTLE.

Is obtainable from all Chemists and Stores throughout the State.

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Approved Securities, 4 to 5 per cent. per annum

FOR SALE.

Note this! Terms in all cases can be arranged.

FIRLE, 3 miles from City—9 acres, 6 rooms, oranges and paddocks, £1,150. A great bargain.

By **HYDE PARK ROAD**, and Penny Section—Detached House, 4 rooms, bath, verandahs, £250. Any terms almost, £20 deposit, 12s. 6d. weekly, principal and interest at 5 per cent.

FIRLE—2½ acres, lovely orangery full bearing, splendid house 8 rooms, etc., stables, pigsty. £1,375.

CITY, close Hanson Street—Detached stone house, 4 rooms, etc. £315.

CITY—Investment, £75 per annum for £1,200. Building could be put there for £1,500 and land given in for nothing.

CROYDON—3 acres close station, rising neighborhood. £150.

NORTH UNLEY—Residence, 8 rooms, bath, pantry, cellarette. Enclosed area, lavatory, stables, trapshed, 1-16th acre. Only 1-8th mile walk G.P.O., close penny section. £890.

CROYDON, close Station—Superb free-stone Villa, 6 rooms, every modern convenience, 50 x 150. £665.

CITY, South Terrace—Well built Villa, 9 rooms, every convenience, large block ground, stables, motor house, concert hall, man's room, etc. Only £1,680.

PORT ADELAIDE—3 shops and 1 room each, brick, almost new, £650. Rents 33s. weekly, rates only £8 yearly. Pays well.

CITY, East Part—2 cottages, 3 rooms, verandahs, £400; rents, 14s. 6d. weekly.

PENNINGTON TERRACE, NORTH ADELAIDE—Residence, 6 rooms, bath, etc., stables, trapshed. £700.

recognised as the king of fodders for dairymen, it forms the main food supply.

The yield per acre would be from 40 to 50 tons of green lucerne per annum, and the maize crop 30 to 45 tons. Barley is grown for greenfeed for the cows, and follows the maize crop. The fodder crops are sown at different dates to ensure their not all maturing at the same time. Thus maize may be sown at intervals of not less than a fortnight, and the same remark applies to the sorghum, barley, and the cutting of the lucerne. Mr. Stanford recognised that the best results are obtained by feeding maize when the crop has just come to the glazing period, or when the cob is in the doughy stage. In the case of lucerne it would be of most value when the crop was one-eighth in flower. This really means that it is then at the maximum value from a nutrient standpoint, because at this particular stage the protein, or most valuable of food ingredients, is most evenly distributed over the whole of the plant.

The cows are liberally fed with chaffed green maize, sorghum, or lucerne, as convenient, to which are added chaffed oaten hay and bran. The ration being given at the time of my visit was:—Green maize, 30lb; oaten hay chaff, 5lb; green lucerne, 28lb; bran, 6lb. This is an excellent milk-producing ration. Mr Stanford assured me, and I agree with him, that 6lb of bran is quite sufficient to feed to a cow daily in order to obtain the best results. If concentrates, possessing more protein or nitrogenous ingredients, are necessary,

then a little linseed or other food may be given, such as good lucerne hay. Some readers may open their eyes at the feeding of 6lb of bran daily; but the careful shrewd dairyman is a business man, and contracts at a price which will pay him to give this amount. If the price of bran is too high recourse must be had to lucerne hay, which is very rich and almost an equivalent to bran in food value. The above ration is divided over two feeds—morning and evening—and the cows are allowed the run of a paddock to pick up any roughage, etc.

Wise provision has been made by the planting of hedges of African boxthorn. This makes excellent shelter, and the dairy cows are comfortable during the wildest and coldest winter nights. Numerous small paddocks are fenced off by these hedges, thus affording warmth and protection from the winds coming from any direction. No rugs are used, and I was glad to notice this. Warm hedges, or belts of trees, or rough shelter sheds are preferable; although I admit that under certain conditions rugs have something to recommend them, but, unfortunately for the poor cows, I too often see these poor animals with a so-called rug or bag on their backs and nothing in their bellies. My advice to cow-owners is to rug the cows inside by giving them plenty of good nutritious food, and then rugs may be beneficial in attaining the best results.

Every fortnight the daily yield of each cow is carefully taken, when, if a decided falling off in yield is noted by Mr Stan-

ford, a satisfactory explanation is found, or someone will be in trouble. At the end of each year each cow's record is made up, and a bonus is given to the milkman who has produced the best results from his cows, for here each man has his own number of cows to attend to. This bonus creates a healthy interest and rivalry. It encourages the workman to do good work and accures kindly treatment of the cattle under their charge.

The bails and milkrooms were visited, and found to be sweet and clean; and I am pleased to say that any metropolitan dairies I have seen under Mr McEachran's charge reflect credit upon the owner and the inspector. The milk is almost solely delivered direct to customers in and around Adelaide by Mr Stanford's milkcarts.—S.A. Journal of Agriculture.

To learn to milk and learn properly is like learning a trade, and very few dairymen realise its importance.

For the proper treatment of cows they require kindness, system, regularity in milking, neatness, and last but not least all the milk should be drawn.

It is important and necessary that every milker should be supplied with a suit of overalls for use at milking time, and that they should be washed regularly.

Too many cows are milked when in an unsuitable condition. Milch cows should be kept clean. Some cows are allowed and often compelled to tramp through mud holes, liquid manure, etc.

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Just what is wanted. If you have spare time, **YOU CAN EARN MONEY IN YOUR HOME.** A new industry for Australian Ladies.

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Our System TEACHES YOU TO MAKE LACE IN TWO DAYS. We give you personal instruction.

We want 1,000 Ladies, young and old, to take up our system to make Lace for us. We pay from 7/- dozen to 360/- per dozen yards.

If you live in the country write for particulars; you can learn our system by post. If convenient to town call and see us at our offices,

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THE TORCHON LACE & MERCANTILE AGENCY.



MR. A. BROWN'S STALLION, "ST. ELMO."

The Farm.

The Value of Ensilage.

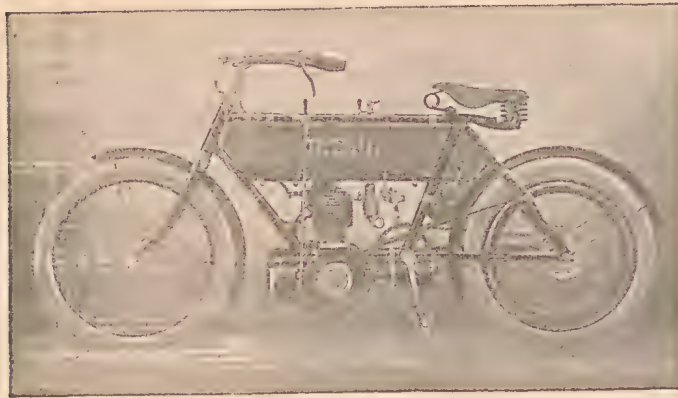
It seems strange that the conservation of fodder in silos or stacks has not been more generally adopted, but farmers are disinclined to depart from ways they are used to, and the silo, although it is steadily making its way, is not yet generally adopted. It has been proved by chemical analysis that one pound of grass, freshly cut in the field, contains more nutritive matter than a similar quantity of the same grass turned into ensilage. On the other hand, it has been repeatedly proved that in the matter of increasing the flow of milk, or producing flesh, ensilage can more than hold its own with the original material. The explanation of this is that the stomach of the animal, unlike the concentrated acids and powerful reagents used in extracting substances for analysis, is only able to assimilate and appropriate for the uses of the body that portion which is digestible for food. But—and it is here where ensilage

has the pull over green fodder—during the process of turning grass or other material into silage a considerably greater proportion of matters susceptible of being nutritious is rendered soluble, and made more easily digestible by the stomach of the animal. The heat and the alteration brought about by the action of the enormous number of germs during the process of fermentation to which the green stuff is subjected in the silo or stack soften and make ready for digestion the fibres and nutritious substances of which the material is composed. This is why a greater proportion of these same nutritious substances are rendered susceptible of being taken into the circulation of animals which feed on them, and are subsequently converted into flesh, fat, or milk. Writers on the subject of ensilage have frequently compared the changes which take place in the constitution of the fodder in the silo to those which take place in the first stomach of the ruminants, and have found that a great similarity exists. The greater digestibility of ensilage and its more appetising properties constitute a reason why it produces such good results when fed to stock, more especially milking cows.

German Potato Crop.

Germany, according to an article in the 'Mark Lane Express,' has a wider acreage under potatoes than any other country in Europe. More than 8,000,000 acres are annually devoted to the crop, and the production, according to the season, varies from 40,000,000 to 45,000,000 tons. Contrast this production with that of Great Britain, where the crop, although an important one, is grown on about 500,000

acres, yielding about 3,000,000 tons. It is estimated that about 7 per cent. of the German crop is bought by spirit factories, 3 per cent. by starch manufacturers, and 44 per cent. used for pig-feed. It is difficult to estimate the quantity employed as human food, but it has been calculated that the yearly consumption is 4lb. to 5lb. per head of population. The variety of tubers grown is very great as regards form, color, and time of maturing. The crop is divided into 'earlies,' maturing about the end of July; medium early, ripening towards the end of August; 'main,' crop dug about the close of September; and the 'late' crop, ready in October. The crop is further divided into 'domestic,' 'fodder,' and factory potatoes. The best position for the crop is considered to be between two straw crops. The German growers supply the crop with liberal dressings of nitrogen and potash. Farmyard manure is the favorite manure, and is considered as absolutely necessary to produce the biggest and best crops. Recently the advantages of green manuring have become recognised, and very good results are being obtained by the system. If the available supply of farmyard manure is not adequate, the deficiency is made up by applications of nitrate of soda or sulphate of ammonia, preference being usually given to the latter, as nitrogen in the form of ammonia seems to suit the crop best. Similarly, phosphoric acid is applied generally as superphosphate, although in the lighter class of soil basic slag is frequently used. Potash is a special requirement of the potato plant, and this ingredient is given as kainit, or 40 per cent. of potash salt. The concentrated salt is the better, as it contains less chlorides, which act injuriously on the quality of the tubers. It is a



See our £10 10s. Cycle, best quality and fully guaranteed specification. Genuine B.S.A. Bearings, Eadie Coaster and Free Wheel, Renold's Chain, Brooks' Saddle, Dunlop Oceanic Tyres, Reversible Handle Bars, any height frame and any color enamel.

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MOTOR CYCLE

Climbs Hills 28 miles per hour without pedal assistance.

The ENGINE TESTS recently held resulted in the Celebrated N.S.U. MOTOR CYCLES being FIRST, SECOND, and THIRD out of thirteen competitors. This was at the South Australian Automobile Club's Annual Hill Climb, when we also secured Fastest Time for the Second Year in succession.

This Contest is the Only Motor Cycle Engine Test that has been held in South Australia this year. We can prove this.

mistake to plant potatoes too soon, and the soil must be in good condition. It is also a mistake to put the seed in too deeply in the ground, 3in. to 4in. being quite deep enough, with 9in. to 12in. apart, and about 24in. between the rows. The benefit of spraying is fully recognised by the German farmers, and is carried out systematically.

Sheep-farming in South Africa

The treatment of wool and the system of management on South African pastoral properties is steadily improving, and in this the pastoralists of that country have found it to their advantage to follow the example set by Australian sheepfarmers. From a newspaper clipping we gather the results of some wool sales. Four clips prepared for the market in the Australian method realised excellent prices, one making a record, while a number of clips prepared by farmers sold at rates on an average 2d. per lb. less. The shearing appears to be generally done by Kaffirs, who, to avoid being fined for cutting the sheep, do not go close to the skin, and thus leave a considerable quantity of wool on the sheep. This is estimated at from ½d. to 1½d. per sheep. This serious loss has had the effect of causing the majority of sheep-farmers to turn their attention to machine-shearing, and now many sheds are being furnished with machines.

A good flock of sheep is the most effective scavenger that can be placed upon a farm in destroying weeds and saving grass.

Sheep naturally drink little and often, an abundant supply of clean water should as far as possible, always be accessible to them.

High Land Values.

Small farms in the Koroit and Warrnambool districts of Victoria have recently realised the extraordinary prices of from £100 to £110 per acre, and £120 has been refused. These farms are fully 150 miles from Melbourne. One farmer, when asked to explain how he could afford to pay such prices, remarked that the boys did all the labor, and that if he put his money to interest he would only get 3½ per cent. Another one said the high values he could pay were due to growing New Zealand Pinkeye potatoes, which he claims gives double the yield of other varieties. In further support of having paid such values, he said there were now many ways of making money compared with years ago. Farmers could sell by-products now which had hitherto been of no value. It must be remembered that these farms are situated in what is probably the finest and richest portion of the Commonwealth. The greater portion of this fertile belt of country is used for dairying, and this industry has placed the landholders in a very comfortable position financially. Rentals for dairying land run from 30s. to £2 10s. per acre, and much higher prices are demanded where cultivation is practised.

Sheep crop so closely and so persistently that weeds and bushes have little chance to grow.

To make the best mutton the animal should be made to grow rapidly and mature as early as possible, being kept in prime condition as to flesh all the time.

The first horse show in England was held at Islington, in the Agricultural hall in 1864.

We have received from Messrs. Hillman and Co., agents, 17 Waymouth street, a copy of a plan both novel and useful, a plan and a directory in one called the Enlarged Numerical Pocket Guide, for which the proprietors have received copyright. At a moment's glance one can locate any street in the city of Adelaide (south) by a very simple process, so simple that a child can understand it. And this is not all. If you wish to find the number of a house in any street of the city the Guide will help you: it will show you at the corners of all streets the number, making it quite easy to determine the whereabouts of the number you require. The price of the plan is only 5s. It has no advertisements on it, and hence an ornament rather than as so many plans are, a disfigurement on the wall. The plan and index are also adapted and used in the Numerical Pocket Guide, a convenient size for one's pocket, tastefully got up, providing also railway and tram time tables, location of various offices in Government buildings, to be obtained for the small sum of 6d. A veritable companion of travel this for all visitors and trades or business people. Much credit is due to the artist, Mr. C. E. Stamp, for the neat design of the cover, which is ornamented with beautiful photos of parts of the city. Messrs. Bennett Johns, Royal Exchange, and Hillman & Co., 7 Waymouth street, are the agents for the proprietors. We compliment the proprietors on the originality of the idea and also on the charming get up of the Guide.

During the last fourteen days of April 11,640 head of cattle were landed in London and Liverpool from the United States and 1,480 from Canada. In the same period 33,700 quarters of U.S. beef were received at British ports.

A. H. FRISBY,

Ladies' and Gentleman's Tailor,

GAWLER PLACE,

(OPPOSITE MACROW & SON).

Late of Bond Street, London, also Western Australia, and late Head Cutter C. J. Lane & Co., Collins Street, Melbourne.

Only the Very Latest and Superior Quality of Materials stocked.

All orders are executed under the personal supervision of Mr. Frisby, and only skilled workmen employed.

Trial Order respectfully solicited. Correspondence promptly attended to

Testimonials from Distinguished Patrons, which appear on other pages.

Note the Address—

A. H. FRISBY, Gawler Place, opposite Macrow & Son.

There is a whole lot of plant food in any soil fit for agriculture.

There is no profit in a pure-bred pig in the hands of a poor feeder.

In Belgium breeders are obliged to keep a record of all cattle raised by them, and each animal has a registered trade number, which is engraved on a ring fastened to its ear.

If a horse has a bluish or milky cast in his eyes he will be liable to go blind at any time.

If a horse's knees are bent or tremble, he has been permanently injured by heavy pulling.

The feed of sows just before farrowing time should be strengthening and not heating.

A young sow is easily injured by being bred too soon after she has farrowed her first litter, not having time to recuperate.

To command a good price the draught horses must move well, and must have good length and straightness of stride.

In Nova Scotia there is a flourishing fox farm. It is not the brushes of the animals but the skins that are wanted.

It is calculated that in Germany 240,000 tons of potash, and still more phosphate of lime, are extracted annually from the soil in the crops, the oxen, sheep, milk, and wool.

To teach a steady fast walking gait is one of the most important points in the training of a work horse.

Up-to-date Tailors



We have a large stock of Woollens to choose from.

Fit and workmanship guaranteed.

Also, a large stock of Gents' Mercery to choose from, which can be purchased at 20 per cent. less than elsewhere.

Self-measurement forms supplied on application.

A. BROWN & CO.
15 CENTRAL MARKET.

There is no other stuff raised on the farm quite so good for colts and calves as nice, bright oats. Colts nibble at the oats quicker than anything else, and it keeps them coming.

With his wonderful appetite and digestive powers, it is the height of folly to keep the pig on short rations.

The best pigs are found only amongst the best breeds, and it is useless to look for them elsewhere.

If a horse's legs are scarred, look out for a kicker or a stumbler.

The growing popularity of draught horses among farmers is assigned as a principal reason for the shortage in the saddle horse class.

When the farmer postpones his attacks on weeds he incurs the risk of not being able to eradicate them at some critical period of their existence, and the pests will then have done damage by depriving the crop of moisture and plant food when the season is most propitious for growth.

No aged sow that has proved herself a good breeder and suckler should be disposed of to make room for young and untried sows so long as she raises large litters of good pigs.

Undertakers.

HADDY, J. C., & SON, Funeral Directors and Carriage Proprietors, All Funerals conducted under personal supervision. 113 Flinders St., Adelaide Phones—Adelaide 1677, Port 110, and Ssmaphore 255. and Jetty Road, Glenelg. Phone 78.

Pruning Fruit Trees.

Pruning is a means to an end. Under natural conditions trees are being constantly pruned. Every fall nature strips the trees of their leaves. This is their regular annual pruning. In addition to this there is a continual pruning of buds and branches. If every bud on the tree were allowed to develop the latter would become a regular bush pile. Those buds which are most favorably situated as regards light get most nourishment, while those less favorably situated become starved and drop off. The lower limbs of trees and those within the crown become weakened and die from lack of sunlight; then the wind, nature's pruning knife, comes along and removes the dead branch. In this manner, trees are constantly ridding themselves of useless branches, and the pruning so effected is undoubtedly a benefit to the branches which remain, and to the general growth and improvement of the tree. Orchard trees, by virtue of selection, hybridisation, and cultivation, are in a highly specialised condition, and to be maintained so must receive special treatment. In a sense the fruit tree is a machine for manufacturing fruit, and intelligent pruning is one of the means by which it can be made to manufacture the most fruit of the best quality in the shortest time, and to keep up the output for the longest possible period. A correct understanding, therefore of this machine and all its working parts is necessary to its most successful manipulation.

It is as well to begin with the tree from the very start, which is at the time when it is transplanted from the nursery to the orchard, as a good beginning is half the battle. Assuming that a tree is about to be planted out, the first thing to do is to examine the roots carefully to ascertain how they fared in their removal from the nursery, as it is often found that the roots have been badly mutilated, especially in this country, where proper tree lifters or diggers are seldom used. Before planting all roots which have been broken or damaged should be cut away, and all the young roots cut back to from 6 or 8 inches of the tap root. All small roots may be removed, leaving only the larger ones, as by digging up a tree which has been planted for some time it will be found, except in very rare cases, that the very small roots never throw out any young rootlets, but wither away and die, becoming a hiding-place, perhaps, for the white ants, which often in time, through such medium, take possession of the tree and cause its ultimate death. The roots should be cut with a sharp knife, and in such manner that when the tree is planted the cut will face downward. By cutting this way, new roots, which will form or rather grow from the cut, will have a tendency to grow in the required direction—downward. The next step to consider is how the top of the tree

shall be dealt with. This, of course, depends largely on the age of the tree in question. If a two or three-year-old nursery tree, it may be advisable to leave either three or four short arms (as shown in figs 1 and 2), as it is found that if the

the time of the first winter's pruning, (that is, the winter twelve months after the tree was planted in orchard form), which pruning will consist in cutting back severely, leaving each arm or branch about 15 inches in length. When the



Fig. 1



Fig. 2



Fig. 3



Fig. 7



Fig. 8



Fig. 9

head is cut away, and only a straight trunk left, the top of the tree may not shoot from the root. This is often the case with the peach, but where a few shoots are left this danger is avoided. If a wellgrown yearling tree I would prefer cutting it back to a single stem (Fig. 3). It must be borne in mind that in moving a tree it loses the greater portion of its roots, and that in consequence the remaining roots are unable to sufficiently support or nourish the growth above ground, for which the whole root system was intended. We must therefore shorten the top in such a way as to re-establish the lost equilibrium, and the planter must bear in mind that it is always better to cut a newly-planted tree back rather severely than to leave it with too much top, as by so doing it will recover more quickly, and in the end make a much better tree. It will be seen by a reference to the figures shown that although the young trees may be about the same size and shape when planted, yet, after the first pruning, they may present the shapes and forms illustrated.

After the first summer's growth and before the second pruning, they will present about the above appearance, (See Figs. 4, 5, and 6).

By adopting a system of allowing only one leader or main branch to grow from each of the shoots (figs 1 and 2) and three starting from different points around the trunk of Fig 3 the tree will present a fairly good appearance at

tree represented by Fig 6 is pruned it will only have four arms left, as shown in Fig 8; and 4 and 6 will have only three arms each left, as shown in Figs 7 and 9. It may be considered by many that this is a rather drastic treatment of young trees, but it must be remembered that while the tree is young our object is to so train it as to produce a well-balanced tree with good arms, and that in consequence, until the tree is three years old, our aim is to attain this, which is best accomplished by pruning for shape and strength and not for fruit. In performing the work it is often necessary to prune so as to spread the tree, as many trees are of very upright-growing habit, and therefore it is best to cut an outside bud, cutting the branch diagonally across, as in this way it is more easily severed, and the risk of bruising the back is reduced to a minimum.

During the second summer's growth the tree will require as much labor, or even more spent upon it in directing and guiding its growth, as by the removal of certain young shoots and the encouragement of others, the secondary arms can be started from almost any point; and where the trees are given this summer attention the task left for the pruner in the summer is very light. The second winter the trees would present an appearance similar to those shown in Figs 10, 11 and 12; and after pruning operations should have the appearance of those shown in Figs 13, 14 and 15 respectively. When Fig 14 has four main arms and



Fig. 4



Fig. 5



Fig. 6



Fig. 10



Fig. 11



Fig. 12

eight secondary branches, the extreme points of which are now from 24 to 28 in. from the trunk, it will be found that some of the branches are stronger than others, and, therefore, during the summer

etc., with manure during the winter. The practice is a common one particularly in some districts, but that does not prove it to be correct, by any means. The majority of our outdoor fruits, including



Fig. 13



Fig. 14



Fig. 15

pruning the stronger growing branches should be kept in check and weaker ones given more freedom when it will be found that the weaker ones will make up the ground that they have lost.

By the end of the third year the trees will have put on a good strong growth,



Fig. 16

and will be well formed trees, as shown by Fig. 16, and will, when cut back as indicated, present a good strong foundation for the future tree, with sufficient fruiting wood to carry a crop sufficiently large for its age—that is, providing it is a tree that reaches puberty at this age. Many varieties of apples, pears, and other fruits will not arrive at the bearing stage until they are much older.

MULCHING FRUIT TREES &c. IN WINTER.

We cannot but maintain the opinion, based on many years' experience, that, as a rule (there may be exceptions, of course, as to every other rule), it is unnecessary, and very frequently injurious, to mulch hardy fruit trees, Roses,

the apple, pear, plum, cherry, &c., are perfectly hardy subjects, and consequently they require no protection in principle—in fact, are better without it, in most cases. Beyond this, a mulch manure, or anything of the kind, excludes from the soil around the trees the undoubtedly beneficial effects of the air, frost, etc., and in the case of a naturally heavy or damp staple, frequently induces a sour and unwholesome condition, which is decidedly prejudicial to healthy root formation and the consequent well-being of the tree. Again, supposing that nothing of this kind occurs, and the tree forms fresh roots freely, the tendency of the mulch is to draw these close up to, or possibly right up to, the surface of the soil; and when the mulch is removed, dug in, or blown away in the spring, leaving these surface roots bare, the natural and only consequence is that they become dried up or withered, and probably killed, by the drying winds of spring or the heat and frequent drought of the early summer—again to the detriment of the trees. Further still, there is nothing worse for fruit trees of any kind than to disturb their roots in any way, as by digging or forking in, however lightly, such a mulch, in the spring—if anything of the kind is done at all, it should be in the autumn, and as early as possible even then. Lastly, there can be no doubt that the proper time to mulch fruit or rose trees, etc., if at all, is in the spring or early summer, and not in the winter. At the former season it checks evaporation, shields the roots from drought and hot sun, as well as feeding them, saves watering, and does good, instead of harm, in every way.

TREES IN DAMP GROUND.

When asked the best trees to plant in wet ground the one addressed has not an easy question to answer. But in a general way, almost all trees will grow in wet ground, provided there be a good drainage, or enough of it that circulation of water goes on constantly. It is wet ground from stagnant water that kills trees. Our valleys are constant illustrations of this. Water may be above ground in some seasons, especially in winter, yet trees grow there and thrive. In summer, what is the heat and the calls for moisture by the trees, the soil loses enough of the water that solid ground appears, into which the roots spread. As a rule, these trees are surface rooting, as will be seen when they blow over, which misfortune often overtakes them. Then can be seen a spread of roots, many feet in length, on all sides, but of less than a foot in depth. It is an instructive sight and lesson to view such a blown-over tree. I have seen such trees, of immense size, large forest trees, with roots extending in a solid mass, many feet horizontally on every side, but not a foot in depth.

It is a trouble to start trees in such a situation. The best way is to procure rather small trees with good spreading roots; set them almost on the surface, and cover the roots with soil procured elsewhere. A small tree will not blow over easily, and in a few years, sustained by the soil placed over the roots, it will form new ones, and be in a position to care for itself. It need hardly be added that it is useless to expect trees to grow where water cannot drain away. There must be circulation—"Florists' Exchange."

TIME IS MONEY

Is an old saying, and a true one, when every second counts. We read of railway accidents, lost opportunities, &c., from the school children to the big business firms, we know the result. In order that we may not be victims take your Watches and Clocks to Frankenberg's, of Rundle Street (next Plough & Harrow Hotel). He guarantees all repairs, and is justified in doing so. Having up-to-date appliances added to his long experience, which makes it unnecessary to make further press comment.

Answers to Correspondents.

LILLIAN Malvern.—Weed your beds of seedlings at once. Delay means seedlings being choked out or pulled out along with the weeds. We have always found that seed pans are better than sowing in the boarders.

ROSE TREE.—Cut hard back before planting, only leave 3 or 4 buds on each stem. This month is a good time to plant; they require less care at the present time than later in the season. Cut away any damaged roots; see that you use a sharp knife and make a clean cut.

The Australian Gardener.

NOTICES.

THE AUSTRALIAN GARDENER has become so popular and the circulation has grown so much faster than our advertising receipts, that we are compelled to increase our charges for advertisements, which may be handed into our office on and after the first of September, 1908. Advertising came and stayed, because THE AUSTRALIAN GARDENER is a wonderfully effective medium, in city, suburbs, country, State and inter-state. We are preparing a series of articles for the September issue and Show. We are glad we have a large beautiful journal with a splendid advertising patronage, and the publisher who overtakes us will have to be sound in wind and limb and powerfully speedy.

The public are notified that a sample copy of this journal will be sent to anyone asking for it, and if satisfaction is given, send along 3s. 6d. for a year's supply, post free.

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All Business Communications must be addressed to

THE MANAGER OF

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Contributors.

All letters, manuscripts, and matter intended for publication should be addressed to the Adelaide Office, corner of Pirie and Wyatt Streets, Adelaide, and in order to appear in the following issue should be posted to reach Adelaide by the 20th of the current month. It is necessary that correspondents should furnish their names and addresses.

Advertisers.

Particulars of rates will be supplied on application.

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The subscription rate is 3/6 per annum, posted to any address in Australasia.

Subscribers are asked to notify the Adelaide Office if they do not receive their copy of the paper; also any alteration of address.

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THE FEEDING OF ANIMALS, 3rd ed., 1905, by W. H. Jordan. 6s.; posted, 6s. 5d.

PRACTICAL GARDEN BOOK, 4th ed., 1904, by C. E. Hunn and L. H. Bailey. 4s.; posted, 4s. 4d.

WORKS BY L. H. BAILEY.

Principles of Vegetable Gardening, 5th ed., 1906. 6s.; posted, 6s. 8d.

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A horse's mouth is not a sure index of his age, especially if he is over six or seven years old.

If a horse stands with his feet spread apart or straddles with his hind legs, he has weak loins and the kidneys are deranged.

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Send for particulars to the College, and lose no time in joining one or other of the Classes if you would ensure success.

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Good Work at Moderate Charges.

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A well-selected stock of Watches and Jewellery at fair play prices.

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COMMERCIAL AND ORNAMENTAL PRINTING of every description in first-class style, on the shortest notice, and at cheapest rates, at the "Australian Gardener" Office, corner of Pirie and Wyatt streets.

It should be remembered that the tendency of lime is downward in the soil, so it should always be applied at the surface and never ploughed under.

If to a thorough technical training the young farmer adds energy, enterprise, and good sense, he almost has a patent on the prospect of success in his business.

THE PIANOLA PIANO

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The Piano of the Future.

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The Young Folks.

Nature's Lore.

Up! up! my friend, and quit your books;
Or surely you'll grow double:
Up! up! my friend, and clear your looks;
Why all this toil and trouble?

The sun, above the mountain's head,
A freshening lustre mellow,
Through all the long green fields has spread
His first sweet evening yellow.

Books! 'tis a dull and endless strife;
Come, hear the woodland linnet;
How sweet his music! on my life,
There's more of wisdom in it.

And hark! how sweet the thristle sings!
He, too, is no mean preacher;
Come forth into the light of things,
Let Nature be your teacher.

She has a world of ready wealth
Our minds and hearts to bless—
Spontaneous wisdom breathed by health,
Truth breathed by truthfulness.

One impulse from a vernal wood
May teach you more of man,
Of moral evil and of good,
Than all the sages can.

Sweet is the lore that Nature brings;
Our meddling intellect
Misshapes the beauteous forms of things,
We murder to dissect.

Enough of Science and of Art,
Close up those barren leaves;
Come forth, and bring with you a heart
That watches and receives.

Marvels of Pond Life.

A ROLLING WATER PLANT.

This little organism is really a marvel, for although it is a vegetable, it is able to move by rolling about through the water. It is exceedingly small, being about the size of the dots over the i's in this print.

When seen with a favorable light, the sight is very beautiful. They resemble a pale green transparent glass globe encircled with a fine net, somewhat like the wire netting that is around a seltzogene. It is thought they are on the borderland between animal and vegetable life. The scientific name given to them is Volvox Globator, revolving globes.

Under the microscope we see within each revolving globe a number of smaller globes also revolving, each one revolving, as it were, in its own orbit.

The volvox are motile, or moving plants, and when examined under high magnification, we are able to discern fine cilia, or hairs, the whole ball being covered with them. The vibrating of these hairs causes the revolving motion.

All vegetable life loves the light and is attracted by it. The volvox is no exception to this rule. If a number be placed in a glass jar which is covered over excepting a small opening where the light is allowed to penetrate, they will congregate against the side where the ray of light penetrates.

We will now take one of these globes from the jar by means of a small pipette, or medicine dropper, and place it in an animalcule cage, under slight pressure, so

that it will remain in one place while we examine it. Under a medium power of the microscope the cilia now comes to view, and also the surface of the ball. We see that it is covered with a network of six-sided cells, each cell joined to its neighbour by a fine thread running straight across from cell to cell, so that the whole surface of the globe is seen to be a mass of cells held together by the thread-like attachment. From the centre of each cell two fine hairs, or cilia, project. These hairs are the means of locomotion. With a higher power objective we find that these hairs are extensions of protoplasm, or living matter.

From the six-sided cells new spheres are formed, but only a few in each globe are set apart for that work. These in time flatten out, and cell division takes place in the usual way. When one cell has divided up into four, the parts detach themselves from the surface of the globe and take their place in the inside cavity of the ball, where they continue to multiply, and finally develop into revolving globes like the parent, so that in each plant we see globe revolving within globe. As the parent grows and expands, the threads that hold the cells together are stretched tighter and tighter, until at last they can bear the strain no longer, and so break away. When this takes place, the matured young ones that are inside make their escape.

Like nearly all other forms of pond life, there is a summer propagation and a winter one. If we examine the volvox in the autumn, we see two new kinds of cells within the cavity. They are much larger than the ordinary ones. One is the male, or sperm cell, which, instead of dividing into globes, develops into flat discs of a red or yellowish color, and finally appears as a long shaped cell with a red spot near one end and two long cilia. The other new cell is the female, or germ cell, which is at first pear-shaped, but finally becomes round and covered with a glutinous membrane. At this period the sperm or male cell breaks up and releases a number of animal like creatures called antherozoids, which have been developed within it. These swim rapidly around inside the globe until they come to the female germ cell. They then penetrate the soft glutinous membrane and enter and become absorbed into the germ cell. This cell is now fertilised, and becomes the winter egg of the volvox. The parent breaks up and the egg sinks to the bottom of the water and rests until the spring. It then becomes swollen and breaks up into a number of cells, each one ultimately becoming a new plant, with cilia, etc., exactly like the autumn parent, and it repeats in its own life history that of its ancestors.

A teacher who was hearing the recitation of a history class asked, 'Where was the Declaration of Independence signed?' 'Please, sir, at the bottom,' answered a little boy.

No Increase in Price.

THE OLD FAVORITE

DIAMOND TOBACCO,

Dark Twist, 3s. 1b Aromatic, 3s. 9d. 1b.

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Wonders of Little Things.

There is a certain fly that makes four hundred and forty steps in running three inches, and all in one-half second of time. To equal this, in proportion to his size, a man would have to run at the rate of twenty miles a minute.

The common flea leaps two hundred times its own length. To show like agility a man six feet tall would have to leap a distance of twelve hundred feet.

The cheese-mite is about one quarter of an inch in length, yet it has been seen to take the tip of its tail in its mouth, and then, letting go with a jerk, leap out of a vessel six inches in depth. To equal this a man would have to jump out of a well from a depth of one hundred and forty five feet.

Equally strange things are found among the plants and vegetables. A student of nature once tested the growing force of a squash. When it was eighteen days old, and measured twenty-seven inches in circumference, he fixed a sort of harness around it, with a long lever attached. The power of the squash was measured by the weight it lifted. Two days after the harness was put on it lifted sixty pounds. On the nineteenth day it lifted five thousand pounds.

The seed of the globe turnip is about one-twentieth of an inch in diameter, and yet, in the course of a few months, this seed will be enlarged by the soil and the air to millions of times its original bulk, and this in addition to a bunch of leaves.

It has been found by experiment that a turnip seed will, under fair conditions, increase its own weight fifteen times in one minute.

'Now, Wilson, you're not laughing at me, are you?' asked the schoolmaster sternly. 'No, sir; certainly not, sir?' Schoolmaster: 'Then what else is there in the room to laugh at?'

Inventor of the Post Card.

The honor of this cheap and convenient means of communication belongs to Prof. Emanuel Herrmann, of Vienna. On Jan. 26, 1869, he wrote a letter to the 'Neue Freie Presse,' in Vienna, in which he developed his plan of a simple card which should be issued at 2 kreutzer (8 cent, or 8 mills) by the Post-office Department, and which should be good for the Austro-Hungarian Empire. At first the department objected to making the price as low as two kreutzer, but agreed to three. But Professor Herrmann and those associated in his plan objected to the extra kreutzer, so that finally the Government agreed to the cheaper rate, and on October 1, 1869, the first postal-card ever issued was put on sale in Vienna. Some years later Germany also adopted Professor Herrmann's postal-card idea, but it was not a great success until the Franco-Prussian War broke out, when they came into general use in Germany. Gradually other countries issued them. The United States of America, which handles them by the million now, was one of the last countries to adopt Professor Herrmann's idea.

'Ma,' said a little boy, 'ought the teacher to whip me for what I did not do?' 'Certainly not, my boy,' replied the mother; 'Well, he did to-day when I didn't do my sum,' replied the little fellow.

Aunt (to small niece and smaller nephew): 'Can't you two children give up some little pleasure before Lent is over?' Nephew: 'Well, Mollie's going to give up teasing me, and I'm going to give up hitting her when she does.'

'Tommy, what's your little brother crying about?' asked a mother of her son. 'Cause I'm eatin' my cake an' won't give him any.' 'Is his own cake finished?' 'Yes, an' he cried while I was eatin' that too!'

Do You Know?

As long as I live I eat, but when I drink I die—Fire.

What relation is the scraper to the door-mat? Step-father (farther).

What is the difference between a jeweler and a gaoler? One sells watches and the other watches cells.

Which are the most contented birds? Rooks, because they never complain without caws (cause).

Why is a fishmonger never generous? Because his trade makes him selfish (sell fish).

What is that which goes up a chimney down, and down a chimney down, but won't go up a chimney up, nor down a chimney up? An umbrella.

Which two letters in the alphabet are very cold? I-C (icy), of course.

Why is a sovereign gained like a guinea? Because it is one pound won.

Why are you more a carpenter than I am? Because you are a deal plainer.

Why do little birds in their nests agree? Because if they did not they would fall out.

When is the moon like a load of hay? When it's on the wane (wain).

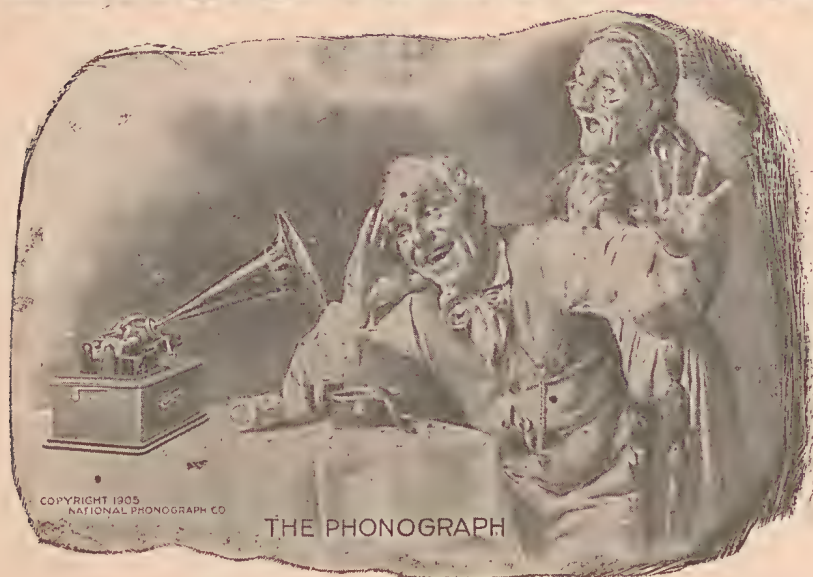
What is the only pane of which everyone makes light? A window-pane.

What insect does the blacksmith manufacture? He makes the fire-fly.

When does a man's right leg become his left leg? When the other is cut off.

FRED LIKED IT. — Ten-year-old Fred was going to a party for the first time. 'Here's half-a-crown, Fred,' said the lad's father, 'if it rains, be sure you take a cab home.' But Fred reached home drenched to the skin. 'Why didn't you take a cab?' asked his father. 'I did, father,' said Fred; 'and I sat on the box all the way home. It was glorious.'

Happiest Hours of Life



are those spent in the home, in easy enjoyment of pleasing melodies.

No need for husband, wife, or children to go to clubs, theatres, or other places of amusement, when home is made bright and attractive by the genuine

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You may appreciate classical music and beautiful compositions though you may not be able to render the same yourself. The EDISON PHONOGRAPH will bring this delight to your house regardless of your personal ability. It is the best response to the constant cry of the human race for something to amuse it. It is **The World's Greatest Entertainer.**

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Head Office—101 Pirie Street, Adelaide.

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New Process of Buttermaking

A VALUABLE DISCOVERY.

Something entirely new in the way of making butter which will keep is promised by M. B. L. Ehrmann, a French chemist. Every person with experience has been disappointed in the quality of butter taken from cold storage. The housewife frequently purchases a few pounds of good butter, possibly when the market price is low, but finds that this butter is scarcely fit for table use in two weeks. Various forms of preservatives, harmless and harmful, have been recommended for keeping butter, but none of them have the property of retaining in butter that aroma which everyone enjoys. The demand is more and more for fresh butter, and it is difficult to sell cold storage goods at all, except in times of scarcity. If Mr Ehrmann has really discovered a practical method of preserving butter, by a simple, harmless, and inexpensive method he will have conferred a great benefit on mankind. Briefly, the process consists of blowing carbonic acid gas through the cream, or washing the butter and cream with carbonated water.

The following practical points in the process will be of general interest to our readers, as given in the pamphlet received:—

'The quality of butter depends first of all on the quality of the cream, and the cream, during the time it is stored waiting to be manufactured into butter, is subject to many alterations detrimental to the value of the butter produced, and to its keeping qualities. The effect of carbonic acid is to prevent such alterations.

'When pure carbonic acid is used, the butter prepared by my process will retain its sweetness, freshness, and original flavour.

'The cream can be treated in two ways, either by the wet process or by the dry process. For the small farmer, a small cylinder of carbonic acid, with a reducing valve, will be a sufficiently convenient plant.

For the benefit of those not familiar with the nature of liquid carbonic acid, it is as well to mention that it is purchased from manufacturers, who send it out in heavy steel drums. The drums hold from 25 to 50 lb of the liquid gas, which costs about 10 cents a lb. Such gas is used in the making of 'pop,'

'ginger ale,' and all similar soft drinks. The gas is also used in machines for producing refrigeration, and for the manufacture of artificial ice, etc.

According to the directions for using, the cream may be carbonated in the cans or in vats by blowing the gas through the cream, butter, and utensils.

The quantity of carbonated water to be blown into the cream is about one-fifth of the quantity of the cream. More carbonated water is required in summer, also when the cream has to be sent to a distant place or factory, or has to be kept for a long time before being churned, or when the cream is over-ripe. If the butter has to be sent to a distant market, or to be kept for weeks, more carbonic acid is to be used in the cream.

'The cream can be churned directly after it has been carbonated, or some time afterwards, and the butter is manufactured as usual.

'Carbonated cream keeps sweeter longer than non-carbonated cream. It is never desirable to carbonate the milk, as a quantity of carbonic acid would have to be used which is much larger than is required by the cream, and would be subsequently lost in the butter-milk.

Orchards, Gardens, Orangeries, &c.

We have a Splendid Selection of Really Good Payable Properties, some with Grand River Frontages and Irrigation Plants.

Also Good Lucerne and Dairy Properties.

Also a number of Choice City and Suburban Residences, some of the latter with few acres attached.

Clients driven to inspect, free of charge.

PRIEST & JAMES,

LAND AGENTS,

30 Pirie St., Adelaide.

TELEPHONE 1817.

The character of the cow has more to do with the quantity and quality of the milk than the actual amount of concentrated food in the daily ration, so long as the cows receive enough to keep them in thriving condition. It is a mistake to suppose that, once this limit is reached, an increase in the concentrated food results in a permanent increase and improvement in the milk. It may indeed have the opposite effect.

In milk we find two classes of flavours; viz., food and contamination. Those flavours of different foods fed to cows, which milk absorbs from the animal before the milk is drawn, are known as food flavours and are always more pronounced at the time of milking.

Contamination flavours are those which gain access to milk after it leaves the udder of the cow. These are of two kinds; one is due to flavours of certain substances which are absorbed by the milk after milking, while the other is due to the milk being directly infected with bacteria which also takes place some time subsequent to milking.

All manure and liquid should be removed from the stable or milking shed immediately after milking is finished. To facilitate easy and thorough cleaning, the floors should be constructed of concrete.

All dairy utensils should have as few corners as possible. In this respect the small cans with cone-shaped necks are the hardest to keep clean.

Horse breeding in Jamaica was carried on with vigour and success for a long period. When the prosperity of the island was at its height there was at Pepper Penn one of the largest breeding studs in the world, numbering seven thoroughbred stallions and over one hundred brood mares. Another stud consisted of forty brood mares.

The Chicago City Council have decided to kill a million cats in the city. That's one more reason why Chicago canned meats should be avoided.

During the past year 3,351 tons of chaff and hay were exported from West Australia to Victoria and New South Wales, where the product found profitable markets. This is the first year the state became a caterer of farm produce to her sister states.

Great Britain imports flax to the value of over £3,000,000 annually, and linseed to the value of £3,274,000.

My son, when you have nothing else to do, plant a tree, said a wise old philosopher.

The heart of Eclipsa, the fleetest race-horse that ever ran in England weighed 14lb.

Tattersalls, the High-change of Horse flesh, was established by Richard Tattersall near Hyde Park Corner, England, in 1706. It was later re-established on new premises in 1865.

Solomon had 40,000 stalls for horses for his chariots and 12,000 horsemen.

English horses were first imported into Jamaica about 1655, when Cromwell took possession of the Island; or soon afterwards; and fifty years later the Jamaica races were flourishing.



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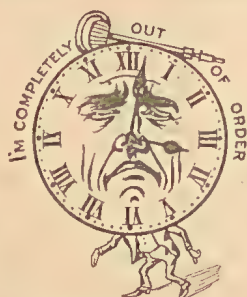
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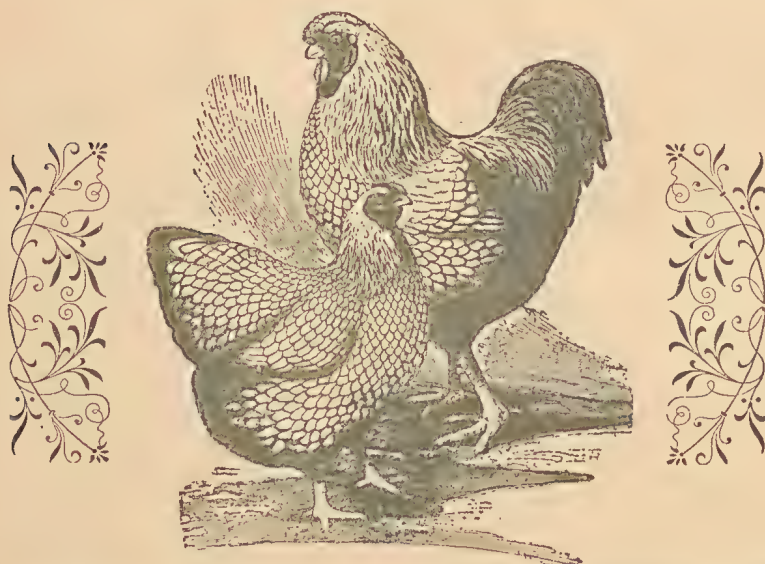
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NEXT TO PLOUGH AND HARROW HOTEL.

SPECIAL NOTICE—Repairs and Orders by Post receive special attention.

The Poultry Yard.



Diseases of Fowls.

(Continued from last issue).

APOPLEXY.

This ailment is associated with male birds more frequently than with hens. The symptoms are giddiness, awkwardness of gait, the head and comb become quite dark in colour; then the bird suddenly falls down, struggles, and, if not attended to, often dies.

Every keeper of poultry has had experience of the disease, and although he may not of been a witness to the symptoms mentioned, is familiar with the results, it being nothing unusual to have seen his flock all on their perches of a night, apparently healthy, and in the morning finding one dead under the perch

Attacks are very easily prompted in birds subject to the trouble. A fright will bring it on; if hungry, rushing their food may cause an attack; while an attempt to catch the fowls in the yard is at times responsible for a death from apoplexy.

Hens are sometimes found dead on the nest after laying, from the same cause; intense heat or excitement may also bring it on. High feeding is the principal cause of the ailment, over-fat specimens being frequent subjects, while some authorities think it may be inherited from parents which have been highly fed; at any rate fowls which have been penned and liberally fed are most subject to it.

Another term for the ailment being congestion of the brain, a small blood vessel of the brain breaking, causing the attack. As with other parts of the muscular system, the little arteries suffer from

fatty degeneration, which weakens the wall, and is thus unable to resist the pressure caused by over-excitement which is brought to bear on the brain vessels; some of them are ruptured, and serious results follow.

Some authorities say that the deaths resulting from extreme heat are not apoplexy proper, for although due to pressure on the brain, there is no clot of blood found as in apoplexy.

Remedial.—When a fowl is attacked it should be treated at once, or death may ensue. The first thing to do and usually effective, is to bleed the bird by opening the large vein found under the wing with a sharp penknife, and allow say two tea-spoonsful of blood to flow.

Preceding the operation cold water should be thrown over the bird's head, which at times brings about a recovery, but bleeding is the most effective. Following this the bird should be placed in a pen by itself, given some Epsom salts in its drinking water, and fed sparingly.

At the same time fowls prone to apoplexy are rarely profitable to their owners; even when cured of attacks they should be got rid of at the earliest opportunity.

Preventive measures are in the way of correct feeding; a diet of maize provoking the disease. Fowls having a free range, with herbage at will are rarely apoplectic.

DIARRHOEA, DYSENTRY, ETC.

Intestinal troubles in fowls are of many sorts and degrees from simple diarrhoea to the almost incurable dysentery. The intestines form a large part of the alimentary canal, and run from the mouth of the fowl right through the system, terminating in the cloacæ, just inside the vent. The intestines (two) are, of course, part of the digestive system. The small one runs from the gizzard to the large

Do Poultry Pay?

Yes, if you REGULARLY use

“KONDO” Poultry Food.

POULTRY FOR PROFIT is a very interesting subject, and one that is not yet definitely settled in this country. However, there is one thing certain, if Hens can be made to lay a large number of eggs, and they do not die from sickness, Poultry-keeping would pay, and pay very handsomely “KONDO” Poultry Food will assist the former, and by keeping the birds healthy greatly reduces the latter.

To be had from Storekeepers, or from

R. G. LILLYWHITE, Sole Agent,
Phone 2250. 10 Alma Chambers.

SOUTH AUSTRALIAN CYCLE DEPOT.

Royal Enfield Cycles, £10 10s. to £20.

Beeston Cycles, £8 10s. to £16.

Liberal Terms. Exceptional Guarantee.

117 Rundle St., Adelaide

intestine. It contains the substance which aids digestion, thus completing the assimilation of the food, the portion retained going to nourish the system, the waste material passing on to the large intestine, then conveyed to the cloacæ, and ejected as droppings.

Diarrhoea, or looseness of the bowels in fowls, is brought on by some irritating matter, such as sour and unwholesome food or exposure, cold, wet weather, and other causes.

The symptoms are excessive discharge from the bowels.

Diarrhoea is responsible for very great mortality among chickens, some poultry-keepers losing a greater number from this cause than from any other chicken ailment.

In America of late years a chicken disease, termed "White Diarrhoea," has become prevalent, and has baffled the best poultry doctors in that country. It is, however, confined to incubator-hatched chickens, not due to that cause, but to something not yet understood in artificial rearing; and, as the chicks are only a week or two old when attacked, it is quite conceivable the difficulty in curing intestinal disarrangements at such an early age. But even in this country, where artificial incubation is less general than in America, the trouble is experienced, while those hen-hatched and reared are sometimes victims.

The existence of diarrhoea in adult fowls is usually due to the presence of some foreign, fetid, or irritant matter in the intestines, and to get rid of that is to usually cure the complaint. The first treatment should be a teaspoonful of salad oil, sweet oil, or a rather smaller quantity of castor-oil, or a dose, about 25 grains, of Epsom salts. Boiled rice into which some powdered chalk has been mixed, should be given a few hours after the purgative, and, if not affective, pills made of 4 grains of prepared chalk, 4 grains of rhubarb, and one grain of opium should be given.

Lewis Wright quotes 5 grains chalk, 6 grains rhubarb, and 3 grains cayenne—a pill given morning and night.

Rhubarb pills can be purchased at any chemist's, which will often be effective in arresting the complaint.

I have cured a number of cases with pills made of powdered chalk and lard only.

Camphorated spirits is another useful remedy. The safest way is to make a pill of ordinary bread, and work about 10 drops of spirit into it. A little alum in the drinking water is also useful.

Sometimes a case of simple diarrhoea may have developed into dysentery before the poultry-keeper is aware of any ailment. In such cases the odds are against the birds, the best remedies to try being a dose of castor-oil, followed

by 5 drops of laudanum every three hours.

Dr Collis Brown's chlorodyne, in small doses, has also proved effective.

What is known as chalky or white diarrhoea in young chickens has baffled the most prominent investigators in America. Dr Woodroff Hill, in his "Diseases of Poultry," says:—The causes of diarrhoea in poultry are much the same as those affecting other creatures, and may be invariably traced (apart from constitutional disease) to injudicious dietary arrangement.

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A Temperance Tonic, brewed from the finest hops grown, matured in our cellars.

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Copying.—We undertake copying of all descriptions. Specifications, Contracts, Price Lists, and Circular Letters. 100 copies Circular, 5s. ; 50 copies, 3s.

Alexandra Chambers, 27 Grenfell Street, Adelaide.

Phone 1030.

Symptoms—The frequent evacuation of loose or liquid faeces, usually of a frothy and watery nature.

Treatment—A teaspoonful of castor oil, followed by 5 grains of rhubarb, and 10 grains of carbonate of soda, or a grain of opium. Chlorodyne, 3 to 6 drops in a dessertspoonful of water or Port wine, is especially serviceable. In severe cases I have found a pill containing a grain each of tannic acid and opium effectual. Diarrhoea, however, is almost invariably due to the presence of irritating matter, and should, therefore, not be checked at the outset with astringents, which are so often and unwisely perscribed.

During the attack, and for a little time after its abatement, the bird should be fed on soft food, and have no green vegetables.

For young chicks, half a teaspoonful of salad oil is preferable to castor oil, and chlorodyne should be given in one drop doses in a teaspoonful of warm milk or barley water.

The doses particularised above are for a medium sized fowl.

Over-feeding, impure water, foul dishes, bad air caused by accumulations under the roosts, draughts of air caused by poor ventilation, open cracks or broken windows, vermin and neglect in cleaning the houses and yards are all causes of disease in poultry.

Mr A. H. Padman, of Adelaide, has received a telegram stating that his pen of White Leghorns in the 12-months' egg-laying competition under Government control at Subiaco, Western Australia, has secured first place with a total of 1,411 eggs. The second pen was a locally owned pen of Golden Wyandottes, with a score of 1,400 eggs. This win finishes a splendid year for Mr Padman. He came first in Queensland with a world's record of 1,538 eggs; second at Roseworthy, South Australia, with 1,528; and first at Berowra, New South Wales. This shows what South Australian-bred birds are capable of doing.

E. W. ATTRIDGE

17 years with W. E. Gray & Co.,

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**Sheet Metal Worker, Plumber
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PUMPS. Spraying & Kalsomining Machines, ACETYLENE GENERATORS, BATH HEATERS, GASOLINE MACHINES. ELECTRIC BELLS, BATHS and TANKS.

Lucerne is amongst the most valuable of green crops on the farm, as it is good for horses, dairy cows, sheep, pigs and poultry.

Education, if it is the right kind and practical, acts as so much paid up capital at the start.



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(LATE J. G. ORAM),

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Repairs to Watches, Clocks, and Jewellery of every description accurately, artistically and promptly executed at moderate prices.

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JOHNSON & HARFIELD,

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WHOLESALE FRUIT & PRODUCE MERCHANTS.

Fresh Fruit and Vegetables packed and forwarded to all parts of the States at lowest rates for cash. A trial solicited.



The Orchard.

The Pruning Season.

INDIVIDUAL TREATMENT OF THE TREE.

All that is now required to strip deciduous trees of their foliage, and put them in condition for the winter pruning is a good heavy frost; so soon as that comes pruning will commence in earnest. A mistake many make is to say that there is no hard and fast rule which should be observed when pruning fruit trees. When it is considered that nearly every tree differs in one way or another, such a statement seems well founded, for certainly every tree requires different treatment. Nevertheless, there is a rule which all might observe; but which in the hurry and bustle to get the work

out of hand, is frequently overlooked that is, "Prune a tree according to its requirements." To do this necessitates that an orchardist should have a thorough knowledge of his trees, the conditions and peculiarities surrounding their growth, the nature of the tree awaiting treatment, whether it is an upright grower or whether one of rambling habits, and numerous other features which present themselves during the existence of the trees. This is no small order, for many of the wants of the trees cannot be ascertained except by constant observation. How to prune a tree cannot be gathered by reading books on the subject, though many valuable suggestions may be derived from them. The value of such books is to afford a general knowledge of the principles which govern pruning, and in putting them into practice, the operator should discriminate as to the application of the various methods to his own conditions. Very often valuable information is to be gained by studying the methods employed by neighbors, and noting the results obtained, when their operations have been conducted along different lines to those employed in treating one's own trees. By doing this, treatment may be suggested which will be advantageous. When once a pruner has a clear idea of what functions the various parts of the tree have to perform, he has a ground-work upon which to start, and scientific pruning becomes merely a matter of practice and observation. If before commencing to prune the

requirements of the tree are summed up, the operator is able to go straight ahead, all the while making allowance for such defects as the tree may possess, with the result that a season or two will show the wisdom of the methods adopted. Every cut made into a tree should be done with some definite object in view; but to commence cutting out without some valid reason is a course of procedure which must ultimately have the effect of weakening the tree and reducing its natural bearing tendencies. Trees treated in this manner may bear crops for a year or two, but indiscriminate cutting away can only end in unfruitfulness.

REASONS FOR PRUNING.

No skilled workman undertakes to accomplish a task without having first considered the nature of the duty the work is to perform, the manner in which it is to be accomplished, and what the results are likely to be when it is completed. So with pruning, to do the work advantageously it is necessary that the operator should have a clear conception of what is required and what will be the resulting consequence of each cut he makes. He should know by the strength of the tree just what quantity of fruit it is capable

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ALL KINDS OF WORK DONE, viz.,
Gents' Suits thoroughly cleaned and pressed at 5s. 6d.; dyed any color. 7s. 6d.
Ladies' Garments, all kinds, cleaned and pressed. 5s.; dyed, 7s.
All kinds of Silks, Feathers, Gloves, and Hats Cleaned and Blocked.
French Cleaning a speciality.
All Repairs neatly and promptly executed.

We desire to say that we are prepared to guarantee our work equal to anything in the City, and to do all kinds of work at Reasonable Prices.

Give us a trial and prove us.

There is Nothing like Leather,

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durable nature of work as guaranteed.

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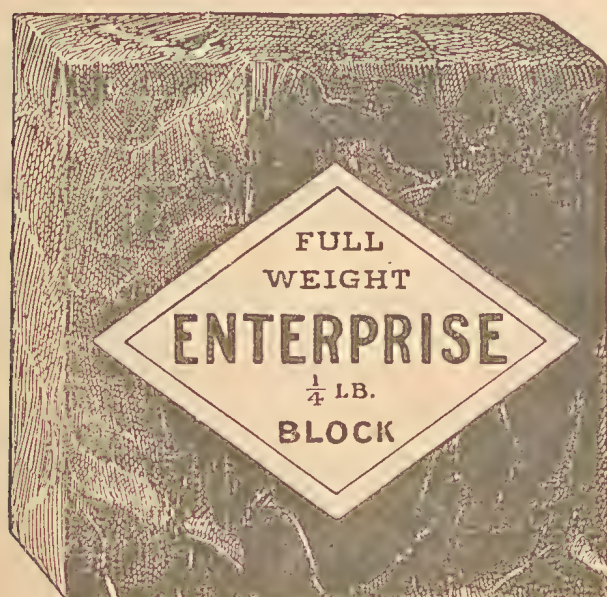
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HIGH CLASS TOBACCO

Aromatic Gold Bar, 5s. 6d. lb. Dark, 5s. lb.

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of producing and ripening without over-taxing its strength or running risk of damage from overburdened boughs. The reasons for pruning are numerous, but the chief objects to be obtained are the promotion of healthy growth; increasing the quantity or quality of the fruit produced; admitting sufficient air and light into the tree to ripen the wood without exposing it to risk of burning from the sun; keeping the tree well under control so as to facilitate the work of the orchard and the harvesting of the fruit; and increasing the duration of time over which regular and evenly distributed crops should be borne. Too frequently trees are allowed to bear inordinately heavy crops, which they are unable to properly mature, with the result that much of it is lost by falling off, and the balance is so small as to fail to procure profitable prices. The loss, however, is not confined to the one season, for the

following year the effects of the strain upon the tree are noticeable by the smallness of the fruit produced. It is far better for a man to content himself with average crops of good fruit, which are readily disposed of at remunerative prices, and to maintain the vigor of his trees. Losses caused by heavy crops of small fruit are almost entirely due to the pruner failing to regulate the quantity of

Palace Hotel, Perth, W.A.,
August 26th, 1905

Dear Mr Frisby—Please accept my best thanks for the very excellent manner in which you have turned out my clothes. The suits are the best I have had in any of the Australian colonies. You are to be congratulated on being able to turn out such first-class work. I am more than pleased with it. Wishing you every success, I am, yours truly,

JULIUS KNIGHT.

bearing wood to the strength of his trees. Very often trees that have not been properly attended to present such a density of intertwining branches that it is often difficult to decide where to commence to prune. Obviously they are overcrowded, and in order to prevent the risk of cutting out a quantity of valuable wood the pruner should first content himself with thinning out the lateral growth and any useless wood, without interfering with the main limbs of the trees. By doing this he is better able to judge the shape his trees should assume and space the boughs accordingly. To take out large, main, or secondary limbs at the commencement often means the sacrifice of valuable limbs, which might have been better utilised to space the tree than those which remain. No branches should be taken out unless it is definitely decided that they interfere with the equal distribution of the remaining ones. The object

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Garden and Farm Boots and Daintiest Footwear.

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of removing large branches should be to secure a nice evenly-balanced tree, with plenty of room between the limbs for the admission of light. Such trees afford ample room for lateral growth and fruiting-wood to be distributed between the branches, afford access to the spray, and to the picker, and minimise the risk of breaking or injuring such spur-growth as is formed.

DESIGN OF THE TREE.

The first attention that the shape of the tree should receive is when it is topped after planting. At this time, it should be decided at what height from the ground the limbs should be started, and the number of arms of which the tree is to be composed. Topping a tree at from 18 in. to 2 ft. enables it to be built up so as to provide sufficient cover to protect the trunk from the sun, and to afford shade for the roots. Moreover, the height is a serviceable one for it enables the ground around the trunk to be easily worked, and with proper treatment provides for a good-sized tree, able to carry crops which may be easily harvested without permitting it to grow to such a height as to catch the full force of the

wind. Whether three or four branches are to form the main design of the tree such buds should be selected as will develop at even distances around the trunk. As these grow up secondary arms may be brought out in such positions as to prevent the tree from becoming overcrowded. Pruning during the first three or four years should be directed towards forming good sturdy limbs, and it is therefore desirable that the amount of wood between successive prunings should not be left too long, but rather that they should be cut hard back so as to enable them to properly develop. During this period the tree should be built up to assume the desired form. The shape now most in favor resembles that of a vase. This shape is given by keeping the centre of the tree open, and gradually bringing the main arms out to form a succession of curves, which gives strength to the branches and enables them to bear heavy crops without giving way, while the more even distribution of the fruit which is induced also contributes to this result. This style of pruning has the following advantages:—By keeping the centre of the tree open it allows the sunlight to

warm and mature the fruit on the inner branches; it induces more even distribution; it gives greater strength, and also facilitates harvesting, spraying, and similar operations.

BEARING WOOD.

After the shape of the tree has been secured, the most important object to be achieved by pruning is the promotion and regulation of the development of fruiting wood. The manner in which this is done depends largely upon the species of tree to be treated. Such trees as peaches and nectarines form their fruit on the wood made in the preceding year, or what is commonly known as the one-year-old wood. The same applies to the apricot, with the exception that it sets its fruit upon spurs formed on the one-year-old wood, instead of on the branch itself. With such trees as peaches the best results are to be obtained by pruning the new growth back to about six buds, and as new wood is thrown out, and the twigs become bushy, to cut them back on old and useless wood, so as to maintain a continuous supply of new one-year-old growth. Owing to the vigorous nature of the apricot summer-pruning is one of the

(Continued on page 30).

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POST CARDS from 5s. per doz.

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CABINETS from 10s. 6d. per doz., including a beautiful enlargement 12 x 10.

BRIDAL GROUPS & FAMILY GROUPS.

Our Picture Frames are the Best and Cheapest in the City for Artistic Mouldings, and an unlimited supply of Colored Plates, Engravings, Etchings, etc., at the most Reasonable and Ridiculous Prices ever offered.

NOTE ADDRESS—

DIMOND BROS.,
150 Rundle Street.

The animals killed in connection with the recent foot-and-mouth disease in Midlothian have been valued at a gross sum of £4,000.

STOTT & HOARE, who have been connected with the typewriter business in Australia for nearly 25 years, have discarded the agency of the Remington machine and are now putting all their energies into pushing the Underwood Visible Typewriter. The public demand up-to-date machines for up-to-date methods and with the Underwood every letter is always in plain view of the operator. This machine is now the leader in America and England, and over 1,000 machines are already being used in Australia. Miss Rose Fritz won the world's championship for speed on the Underwood. The Adelaide business of Stott & Hoare will still be carried on under the management of Mr. F. B. South at Alexandra Chambers, 27 Grenfell street (see advt., page 23).

There is a mystery in all things in heaven and earth, but the life and activities of bacteria are about the most mysterious.

The more we know of bacteria the more marvellous do they seem. Their functions and activity enter into almost every part of the world's work. Controlled they become the benefactors of mankind. Uncontrolled they are the scourges of humanity.

The word manure is derived from manoeuvre, which means to till by hand, that is, cultivation.

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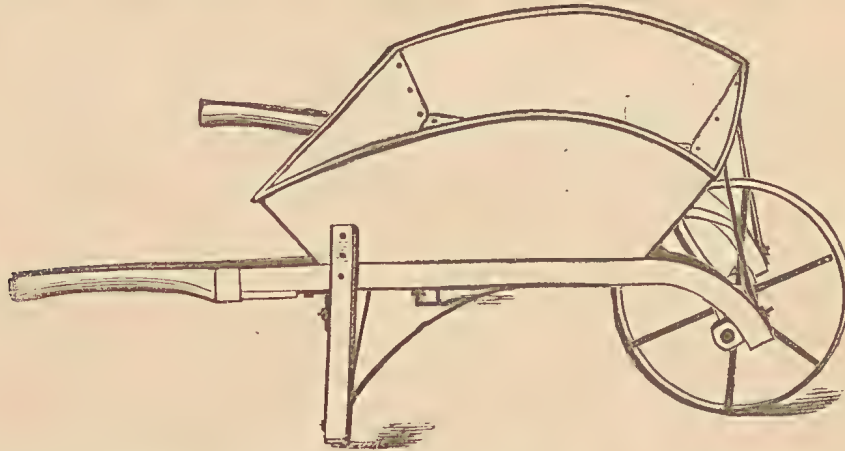
SADDLE AND HARNESS MAKER,
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A pig that is stunned in growth may recover from it to all appearances, but in all probability the poor treatment received by the parent will crop up in the offspring.

WHEELBARROWS,

Light, Strong, and Everlasting. Unequalled for Garden, Farm, and General Use.



Made in Black or Galvanized Iron. Sizes—No. 0, 1½ bushels; No. 1, 1½ bushels; No. 2, 2½ bushels.

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Makers of Field Gates, Water Barrows, Watering Cans, and all kinds of Metallic Goods for Garden Use.

Medical science during the last four or five decades has taken wonderful advanced strides, and the practitioner who prescribes blood-letting and blistering is a man of bygone days. But the end is not yet, for the modern physician is beginning to find that the present method of dosing patients with evil smelling and tasting medicines (some of which contain deadly poisons) is anything but satisfactory, and they are now turning their attention more than ever to the natural remedies of nature, viz., pure food, water, and air. In every disease, whether it is produced by accident or in some other way, two conditions of the body are always present:—1. A circulation of the blood that is disturbed, some parts of the body having too much and others too little blood. 2. An abnormal quantity of poisons in the system. The quickest, safest, and most natural way to assist nature to right these abnormal conditions is by the use of water intelligently applied. In the Hydropathic Institute, Victoria square east, water applied in a number of different ways takes the place of medicine. Baths, packs, fomentations, sprays, douches, etc., are used very effectively, and in conjunction with electricity and massage proves a very great help in bringing back health to those who have lost it. Such diseases as rheumatism, sciatica, lumbago, indigestion, constipation, as well as all nerve disorders, yield very readily to the methods used at the Electro-Hydropathic Institute, and we would advise our readers

the next time they are in need of medical help to patronise the Institute. Quite an interesting time can be spent in inspecting the different appliances—electrical and otherwise—that are used in the establishment, and the manager (Mr Charles D. Baron) will be very pleased to give any information in regard to the methods of treatment used in the Institute.

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Please mention this paper.

During his 19 years' experience as manager of the Sewage Farm Mr Bedford Hack, who has retired from the position made several experiments with the object of determining which fodder grasses were the most profitable to grow there. The desirableness of planting varieties which would alternate and thus provide a permanent pasturage was always in the mind of Mr Hack during the experimental stage, and he demonstrated clearly that prairie, rye, and lucerne were the best sorts to sow where irrigation could be applied. "I sowed one and a half bushels of prairie, a quarter of a bushel of perennial rye, and 6lb of lucerne," he said when discussing the subject with a representative of "The Advertiser." "The mixture has proved most satisfactory, because it provides a permanent green pasture. The prairie is a winter grass, and it proved one of the best I tried. The others are summer plants, and lucerne particularly has done remarkably well under the irrigation system. Where people can apply water freely I think they cannot do better than plant these three grasses in the one paddock, as I have done with such success."

It has been said that we have more wife-made men than self-made men on our farms to-day.

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most effective methods of producing fruit-bearing wood. By checking the spring growth the sap instead of being used to make large quantities of unnecessary wood is confined to the ripening of the remaining branch, thus materially assisting in the production of fruit-buds and spur growths. The winter pruning of the apricot should consist mainly of thinning out the tree so as to afford opportunity for the spurs to mature. With the apple summer pruning is also one of the most effective methods of furnishing the tree with a good supply of fruit-bearing wood. This should be done after the sap is well up in the tree. In the treatment of the apple the centre of the tree should be kept well open, and lateral growth for use in spur-production pruned back short so as to thoroughly ripen the wood. Most of the fruit of the apple is carried on the light wood of this description, which should be encouraged as low down in the tree as possible. As the fruit spurs become too numerous and run into one another they should be shortened back to prevent crowding-out and overbearing. The chief object of an intelligent pruner is to develop and distribute wood of this nature as much along the main arms of the tree as possible.

CARELESS PRUNING.

In their haste to complete pruning operations careless workmen frequently fail to give sufficient attention in severing the branches and often cause a great deal of damage by cutting them off too close to the eye or in actually cutting through the eye itself. The commencement of the cut should be on the opposite side of the

branch on which the eye is situated and slightly above the level of its base, finishing on the other side just above the point of the eye. When the cut commences below the base of the bud the ensuing growth is always liable to be snapped off by the weight of the crop or by the force of the wind. Another mistake made is to sever the branch midway between two eyes. After a while the wood left above the eye dies back, and retards the development of the newly-formed branch. In this connection, particularly with large size branches, the dead piece of wood is likely to form a pocket in which the water may lodge and so set up rot, eventually making the branch unproductive and necessitating its removal. All large branches should be severed in a slanting direction from as close to the base of the remaining limb as possible, and should the edges be rough they should be pared round with a sharp knife so as to induce rapid healing. As soon after removal of the branch as possible such cuts should be treated with a coating of white lead or paint of some description so that in the event of rain, water will not find a lodgment on the surface. Moreover, such a dressing diminishes the possibility of the sun cracking the wood, and providing hiding places for the codlin moth and other pests.

There can be no question that increased yield may be secured by a systematic selection of seed from fields producing the heaviest crops under normal conditions.

South Australian Hotel,
North terrace, Adelaide,
November 18, 1907,

Dear Mr Frisby—Let me thank you once more for the excellent manner in which you have turned out my clothes, especially that silk suit and the white ducks. The cutting is quite up to the English standard, and as good as anything I have ever had, I hope to find you here when I come again. Wishing you success, believe me, yours sincerely,
JULIUS KNIGHT,

By Appointment
to
His Excellency



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August Number of

1908



The Australian Gardener



(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry),

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EDITORIAL.

SINCE the beginning of last month the rainfall in many parts of the State has been good, and must result beneficially to the agriculturalists, horticulturalists and others who are engaged in the important—undoubtedly the most important work in the State—the cultivation of the soil. We have had ample conviction of the prosperity that rolls over the country when good seasons are experienced, and of the disastrous results that follow in the train of a drought. During the past few years South Australia has been fortunate in having everything that could be reasonably desired in respect of seasons, and quite a welcome recovery has been made from the former bad times. Although the rain has not been stingy in its fall, more of it would be appreciated at present even around Adelaide.

Still, however, the prospects of an abundant season are promised on every hand, and the hearts of all concerned have been gladdened accordingly. It is now the proper time for sowing summer fodder such as sargum, lucerne and Essex rape, and those who desire to cultivate these products should not delay in commencing operations. In regard to vegetables, the gardener should be busily engaged at once in sowing seed for early tomatoes of the varieties of Carters' Sunrise, Early Ruby, Early Freedom, Benderosa, Mikada, Volunteer, and numerous others. Also cucumbers, water and seed melons, asparagus roots, and sea kale. The egg plant is in much greater demand than hitherto, and is gaining in appreciation. Sugar corn, which finds so much favor in America is being largely cultivated in South Australia,

particularly by those who have travelled through the American States, and recognised its value.

French Beans should be sown now, including the Canadian Wonder, the most popular kind grown, Emperor William, another excellent variety, asparagus beans, sometimes known as the yard-long or snake bean, the Cossack, frequently called the Madagascar bean, and the bean Dolichos, which is a good climber of fences or verandahs, and produces double pods. These latter beans are used for cooking similar to the French beans, and are chiefly available at the end of the summer months. The Dolichos bean is very highly favored by many.

The flower gardens have a backward appearance, but fine weather for another two weeks, or even less, would materially improve their condition. It is the proper period of the year for planting yellow asters, tuberous begonias, both double and single, Phlox Drummondii, Sun-flowers, Cactus, Deliaias, Double Balsam, and such like varieties. There is every promise of a good rose season, and the budding has already become apparent.

We were shown a few Daffodils during the week, which were grown at the seaside. This is early for them to make their appearance. We also saw in a shop window in Rundle street some beautiful English Snowdrops—a rare but delightful sight in this part of sunny Australia. They were of the double variety.

Wattles are in bloom in all the suburban gardens, and from now onward different varieties will be coming into blossom until the hills are almost yellow with the golden wattle flower, of which we are so justly proud.

Fruit trees that may be planted are Japanese Persimmons, Guavas (purple),

orange and lemon trees, and citrons. Also strawberries, Madame Melbas being the favored sort.

During the past week the butter market has been active, and high prices have been ruling. This was brought about by the depression in the dairying industry in Victoria, caused by a severe drought, and the consequent shortage in supplies in that State. So serious had matters become that Victoria, which had for years past been looked upon as the premier butter exporting State of Australia, was, and is still, unable to produce sufficient butter to meet the requirements of its own people. Supplies had to be drawn from New South Wales, then from Queensland, and finally from South Australia. The result in Adelaide was that butter went up to 1s 11d retail, and fetched 1s 8d per lb wholesale. Victorians, who have lost thousands of their herds, owing to the cold weather and drought combined, should profit by their bitter experience. Indeed, their losses should prove an object lesson to all the States. There was, practically, no fodder conservation in Victoria, to provide against a drought, and the result has been disastrous. The conservation of fodder should be insisted upon in all the States, in order to avoid, as far as possible, the appalling consequences of droughts. In New Zealand fodder conservation is absolutely necessary for at least three months in the year, when everything is killed by black frosts. The same applies to some parts of Canada, where farms are not seen, owing to snow, for six months at a time. The weather conditions in Australia are more favorable; hence it is that our people are prone to take chances. But the droughts do come, and the day of reckoning does arrive.

The Vegetable Garden.



CUSTARD MARROW—WHITE AMERICAN.

Operations for the Month.

In many parts of the State spring may be said to begin, but in colder parts the weather is still wintry, and frosts frequently occur. Take every opportunity of destroying young weeds, for many of the worst of them begin to grow about this time of the year, and the best chance to get rid of them is to tackle them whilst they are quite young.

Take every opportunity to prepare for spring sowing and planting, for during next month nearly all the tender sorts of vegetables may be sown, even in the coolest climates. Make a thorough clearing away of rubbish, such as old cabbages, peas, and useful vegetables of all sorts. When these have been cleared off, spread a good dressing of manure and dig it in, taking care to dig the beds as evenly and level as possible. Nothing can be worse than a bed all heaps and hollows, and it requires but little practice to dig well if proper attention is given to it and the work be not too much hurried. During the month the following vegetables may be planted and sown:—

Asparagus—Roots had better be planted as soon as possible, because before long, and especially in the warmer parts of the State, the buds or shoots will begin to start into growth.

Artichoke, Jerusalem—Before it is too late obtain some tubers and plant them out in trenches made about 6 inches deep and 3 feet apart. Drop the tubers along these trenches about one foot apart and cover with fine soil. The ground, before making the trenches, should be well dug and drained, and well manured.

Beans, French or Kidney—As this is a vegetable generally well liked and com-

partively easy to grow when the frosts are over a few should be sown in the warm parts of the State. Where there is danger of frost it is not worth while risking the sowing, as the vegetable is tender and cannot stand frost.

Beet, Red—Sow seeds in drills 18 inches apart, and about 1 inch deep. Cover the seed by hand with fine soil and firm down with the back of a spade. When the plants come up and are three or four inches high, thin them out by degrees to about nine inches or even a foot apart.

Beet, Silver—Manure the ground well with farmyard dung and then sow the seed in the same way as directed for red beet. Thin out the plants well to about 18 inches apart, and keep them free from weeds.



CAPER.

Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Savoy—These vegetables require much the same treatment and are therefore classed together. They belong to the same family, but have been altered by selection and cultivation. Make small seed beds, digging the soil fine, and keeping it as level as possible. Sow a little thinly in small drills about 2 inches apart. The Brussels sprouts, broccoli, cauliflower, and Savoy will be

found to succeed best at this season of the year in the coldest parts of the State. When plants are available, they may be planted out from 2 to 3 feet apart, according to the richness of the soil. The richer the soil the wider apart the plants should stand. The ground should be well dug and well manured. In order to produce good cabbages, cauliflowers, etc., the seedling plants should be lifted carefully from the seed beds, taking care not to break their roots. They should then be planted carefully, kept well weeded, and well cultivated frequently.

Celery—Sow some seed in a small carefully prepared seed bed or in a box of good fine soil mixed up with some old dung. When the plants have grown to a height of about two inches move them to a small bed which has been well prepared and the soil made fine. Then plant out in this bed about three inches apart the young seedlings when they have grown to a height of about 2 or 3 inches, and they will develop into strong sturdy plants, ready for transplanting into trenches. Celery needs abundance of manure and good supplies of water.

Cardoon—If plants can be obtained they may be planted out at the present time or later on in the spring. If no plants are available seed must be sown. Plant about 3 feet apart each way. The usual method of blanching the leaves is to tie all the leaves together some time be-



OKRA, OR GOMBO.

fore the vegetable is required for use and tie bagging, or, better still, straw round the whole. The soil should be made rich by heavy manuring, and the ground should be trenched. The cardoon is excellent when stewed like celery, the centre or heart only being used and not the grosser outside leaves, which, though they may be well blanched, should be rejected. During the cooking process let the water used to boil it in be abundant, in view of removing a somewhat bitter flavor when badly cooked."

Celeriac, or Turnip-rooted Celery—This is a variety of the ordinary celery, but the root has become, by cultivation and selection, like a turnip in appearance and this turnip-like root is used instead of leaf-stalks. It is a useful vegetable, especially for soups and stews and can be easily grown. The soil should be rich, well manured, rather moist and light.

Carrot seed may be sown largely in soil that should be prepared in the same way as that recommended for red beet.

Cucumber—Sow some seed under shelter, and plant out the seedlings when they have become strong plants. Frosts are likely to kill them if they are not protected at night.

Leek:—Sow a little in a seed-bed, and when the seedlings have grown to a height of 6 or 8 inches they may be transplanted. The seed should be covered very lightly with soil—in fact barely covered.

Lettuce—Sow a little seed in a bed, and plant out the seedlings when they are large enough to handle. If plants can be obtained they should be planted out. Do not break the roots more than can be avoided.

Melons, Cucumbeer.—Seed may be sown in warm spots, where the young plants can be protected from frosts. When all danger from frost is past the seedlings may be transplanted out to the garden.

Onion.—Sow seed largely of this important and wholesome vegetable.

Parsnip—Sow largely in drills as was directed for beet-sowing. The ground should be dug deep, but it would not be advisable to apply manure.

Peas should be sown largely in well prepared ground that has been well-manured with rotten dung. Avoid the use of manures containing a large proportion of nitrogen, such as sulphate of ammonia. If artificial manure has to be used, apply superphosphate of lime two parts, and kainit, or potash manure, one part, at the rate of about a large handful to the square yard. Fine ground bone-dust is a good manure to apply, and lime, rubbish, and wood ashes are useful. Sow the peas in drills, about 3 feet apart, and cover with about three inches of soil. The peas should not be sown closer together than 4 inches. As soon as the peas are well up above the ground put in sticks along the rows to support the plants from trailing over the ground. Keep the ground between the rows frequently hoed.

Potato—Plant a few rows of kidney variety of the Early Rose; or if these cannot be procured, try any other kind

available. Use fair-sized whole potatoes in preference to cut sets.

Radish—Sow a few rows of various kinds in soil made rich with well-rotted manure.

Rhubarb—This is a most useful plant to grow. It needs rich, heavily manured, well-drained and deeply-dug soil. Plant out roots if they can be obtained, 3 or 4 feet apart. The crown of the plant should be about 2 or 3 inches below the surface of the soil when covered up. If plants are not easily obtainable, seed may be sown next month, but the plants will not be ready to put out for some time.

Salsify or Vegetable Oyster—This is but seldom grown in the colony, but it is a good vegetable and useful for a change. It needs a light rich soil for its fleshy roots but fresh manure should not be used. Sow the seed in rows about 15 inches apart, and when the plants come up thin them out to about 4 or 5 inches apart.

Turnip—Sow a little seed in drills, about 1 foot or 15 inches apart. Cover the soil with not more than an inch of fine soil. Manure with stable dung, superphosphate of lime, or fine bone-dust.

Tomato—Sow a little seed in a warm, sheltered place and protect from frosts. When there is no danger from frosts, seed may be sown in the garden without protection, and if plants can be obtained they should be planted out.



TURK'S TURBAN PUMPKIN.

in the world. Water is plentiful, or can be made so, yet the white farmer contents himself with a possible profit of less than £2 per acre on wheat, and proportionately small profits on maize, pumpkins, potatoes, etc., whilst the Chinaman forces ten times that amount per annum out of a small hand-worked garden. His methods are described as follows by a writer in the 'Rural Californian':—

For the past three years it has been my pleasure and privilege to observe the methods of a Chinese gardener near by, and humbly imitate his procedures in my own modest 'truck patch.'

Although in his own country 'John' was a water-carrier by occupation, he has during his few years' sojourn here acquired a store of agricultural lore calculated to inspire his neighbours with envious admiration.

For example, when his young lettuce reaches the height of 2 or 3 inches, he does not eat or throw away the young plants in the process of thinning. Instead, he clips off about an inch of the root tip, and replants them in long rows, placing the plants at least a foot apart. This transplanted lettuce forms heads of such an immense size that at a short distance the bed resembles a cabbage patch.

His onions, which he always grows from the seed, disdaining the use of cloves or sets, have their roots clipped when transplanted and grow to be larger than an ordinary saucer in an incredibly short time. He transplants beets in precisely the same manner as lettuce and onions.

When he cuts off the lettuce heads for market he waters and cultivates the bare stalk, which heads out again in about one-third the time required to grow it from the seed. He treats his cabbages in the same way, except that he allows the outside leaves to remain attached to the stalk. The second head is small, and has no white centre, but he finds a ready market for it among the lovers of boiled greens.

'John' saves his pumpkin and squash seeds by leaving them inside the pumpkin or squash, as the case may be, until the planting season. Then he opens the aforementioned vegetables, and plants the seeds with the fresh pulp clinging to them.

He wraps his muskmelon seed in a tow sack and buries them in rich soil, keeping them very moist during the few days which pass before the seeds sprout. He then plants them, and they appear above the ground with mushroom-like rapidity.

Once, contrary to his advice, I set tomato plants on a spot where ashes had been thrown for several years. The vines grew to an enormous size, and had many blossoms, which dropped off in a few days. One day 'John' observed this, and with great solemnity came over and cut and hacked the branches of the plants almost half in two. Although this was in the latter part of July, the drooping, half-severed vines were soon loaded with tomatoes, and continued to bear until killed by frost in December.

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John Chinaman, Gardener.

It goes without saying that the European gardener who understands his business, and devotes himself earnestly to it, can raise a greater variety of vegetables, and of infinitely better quality, than the Chinaman gardener. It was out of market gardening that Kubelik, the great violinist, made the money which enabled him to become a celebrated artist, and an exceedingly wealthy man. Why is it that we so rarely see a purely white man's vegetable garden? We give it up. Vegetables grow to perfection in the States all the year round. The soil is unsurpassed

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The Flower Garden.



SINGLE TUBEROUS BEGONIAS.

The Bamboo.

By J. CRONIN.

Plants generally known as bamboos embrace several genera, including *Bambusa*, *Arundinaria*, and *Phyllostachys*. With few exceptions they are natives of India, Japan, China, and other parts of Eastern Asia; but a few occur in tropical America, and the well known Bamboo of most gardens, the Danubian reed, *Arundo donax*, is a native of South Europe. The latter has been planted in almost all districts and divisions of the State, and although a moisture and shade-loving plant—as are all others of this class—the

Arundo is often seen growing in large clumps or patches under conditions totally different to those generally considered necessary for its wellbeing. When well established it will endure fairly rough conditions, and is a valuable shelter plant for poultry, in addition to its picturesqueness; the reeds or canes are also valuable as stakes or for trellis making. This fairly common plant is worthy of much extended culture, especially where moist and shady positions are abundant.

The finer types of bamboos are not as easily grown as the *Arundo*, but where suitable conditions prevail they are fairly hardy and require little attention when well established. Shelter from hot winds is the most important factor in selecting sites for them, and sufficient water to insure moderate moisture in the soil during hot dry periods is almost of equal importance. In many gardens several kinds are found to thrive with a little care and attention when first planted, the effect produced quite justifying the trouble taken to establish them. Some kinds are erect in habit of growth and attain a height of 15 to 20 feet; others are smaller but far more graceful in appearance, while some are distinctly dwarf plants and suitable for planting in the smallest gardens.

The most suitable soil is a light loam that contains a fair amount of humus. Heavy soils may be brought to the right condition by the addition of manure containing plenty of straw or other material tending to produce porosity, while sandy soils will benefit by the addition of strong loam or clay or cow manure. Though bamboos are naturally denizens of low and shaded situations, they will not thrive if the soil is water logged and sour. A fairly drained soil is found in gardening practice to be an

absolute necessity for their successful cultivation.

A suitable situation is of more importance than soil. Bamboos must have protection from fierce winds to do well. A situation sheltered from north winds in summer is most suitable. In the Botanic Gardens they are grown in all aspects, a feat that is easily accomplished there on account of the shelter provided by the splendidly designed groups of large trees that have been planted to provide such shelter for tender plants in addition to scenic effect. In small gardens the shelter of a fence, hedge or tree, or house, will supply the conditions suitable. Bamboos are often planted in mixed groups of plants and in such situations are fairly effective, but to display them to advantage they should be grown in rather isolated positions where there is room to develop their growth and elegant characteristics without hindrance. Many kinds are specially suitable for planting as specimens on lawns, *Bambusa gracilis* being one of the best for the purpose.

Bamboos are propagated from divisions



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ADELAIDE

of the plants and cuttings of the rhizomes, *i.e.*, creeping root-like stems growing beneath the surface. Cuttings of the canes or small branchlet-like shoots will also produce plants. Early spring is the best time to divide bamboos where the summer conditions are very dry and hot; the divisions root readily in fairly warm soil and become in a measure established before the weather is severe. Late spring in cooler districts will supply approximate conditions. The plants should be fairly supplied with moisture during dry weather and will benefit by the application of a mulch where water is scarce. The treatment necessary for the cultivation of the *Arundo donax* is practically identical, except that less care is necessary generally as the plants are hardy and will grow in soils and situations unsuitable for the more delicate bamboos. The whole of the class are suitable for planting beside water courses, etc., if the aspect is at all sheltered from hot winds.

A number of kinds is procurable from the various nurseries in the State. The original name, *Bambusa*, has been retained by nurserymen in most cases, although the latest classification refers most of the kind to different genera. A few of the best of the kinds available are:—*Nigra* (black stemmed bamboo) grown to a height of 10 or 15 feet; *Metake*, also known as *Japonica*, a vigorous kind of moderate growth; *Gracilis* (*Arundinaria falcata*) a beautiful drooping kind that grows to a height of about 10 feet; *Simoonii*, a tall erect grower; and *Fortunei*, variegated, a dwarf and neat form. —*Journal of Agriculture, Victoria.*

Notes for the Month.

During the month of August flowers of many kinds should be abundant in all gardens where spring may said to begin. The jonquils and daffodils, which are favorites, and very justly so, with everyone, should be blooming freely. The best kinds are now becoming plentiful in the State. All sorts of tender annuals may be sown this month, except in those districts where very late and heavy frosts are likely to occur. Of these the following are pretty and well worth growing:—*Acroclinium*, *roseum*, *album* and *grandiflorum*—pretty everlastings, and easy to grow; *amaranths* (plants relating to the



DOUBLE-FRINGED PETUNIA.

coxcombs). The *Globe amaranth*, which bears purple everlasting flowers, classed botanically as *Gomphrena*, is a useful plant, and particularly suited for growing in a mass. The true coxcomb (*Celosia cristata*) bears the well-known peculiar flower heads; this plant needs a warm situation—indeed, all the family of *amaranths* will thrive best in warm situations. There are many varieties of *Celosias*, but their flower-heads are more open, in fact, become spikes or masses of spikes, and these, to some persons, are much more preferred than the coxcomb. The *Antirrhinum* or snapdragon is a useful flowering herbaceous plant. There are numerous varieties, some tall-growing to about 2 or 3 feet, and others are dwarf. The latter are very pretty little plants and well worth growing in all gardens.

Obtain some of the many beautiful varieties of *Iris*es, including some of the Japanese. These bulbous and creeping rooted plants will succeed best in moist situations, but will flower well under ordinary conditions if they are not allowed to become very dry. They need the sun, and will not succeed well in a shady place.

If *Bouvardias* were not planted early in the fall they should be planted during August or the early part of September if the soil is not too dry. However, although the soil may be very dry, you can plant if you have a good supply of

water, and use it in sufficient quantity to keep the plants from flagging. *Camelias* may also be planted, as well as other evergreens. Use some shading if the sun is very hot at midday. An old shingle or two or a little brush will answer very well, but the plants should not be over-shadowed or else they will become weak and may die off. Prune roses and do not be afraid to use the knife well. The usual advice for pruning roses is to prune back hard all those kinds which do not make strong growth, but do not prune back so hard the vigorous growers or else they will produce too much wood at the cost of flowers. The first thing to do is to cut out clean all dead wood, then if the plants seem to be crowded, cut out clean the crowded shoots, then cut back the remaining branches and endeavor to make a well-balanced plant and a neat job. To be a good rose-grower one must learn from experience and observation. Use a sharp knife in preference to shears, and do not be afraid of a few scratches from the thorns. When the pruning is finished gather up all the prunings and burn them, then clear away weeds and fork up the ground between and around the plants. If you are not a good hand with a fork, and keep tearing and dragging up the roots as you dig you had better use a sharp spade, for it is better to cut the roots than drag and tear them about. You need not dig up the ground more than 2 or 3 inches deep, and if you stick to this depth you will not cut many roots. When you have finished this work spread a mulch of dung all over the bed about 2 or 3 inches deep. If you have, say, 50 roses planted 3 or 4 feet apart you will require a good deal of dung, but, of course, this should be plentiful on every farm. The rose is one of the most interesting and beautiful flowers it is possible to grow, and the best kinds for general purposes are those known as the tea scented and hybrid teas, for they will be nearly always in blossom if the seed-vessels are cut off as soon as the flowers fade away.

A much admired plant for pools of shallow clear water is the forget-me-not.

As a climber for use outdoors in summer the good old *Cobæa scandens* is still appreciated. It grows fast, has pretty foliage, and its large bell-shaped flowers make a great display.

E. & W. HACKETT'S FLOWER SEEDS.



STURT'S PEA.

WALLFLOWERS—Lovely scented, Single and Double sorts.

TALL NASTURTIUMS, DWARF NASTURTIUMS—Great variety of colours in each class.

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Exquisite Salpiglossis.

Plants of Double Violets.

Columbines (Aquilegia)—
The new Long Spurred Varieties.
Also Double Spurred.

Canterbury Bells (Campanula)—
Single and double, several colours.

Chimney Campanula—
Blue and White.

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Choicest Double.

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Shades of Blue, &c.

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Mignonette.



Double White Pearl Tuberoses, 1/-

As Illustration.

E. & W. HACKETT, Seedsmen and Nurserymen,

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STRAWBERRIES—

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ROYAL SOVEREIGN.

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SIR JOSEPH PAXTON.

WHITE CHILIAN.

APPLES	} Best Cooking and Dessert Sorts.
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PEACHES, very early, early, medium,
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JAPANESE PERSIMMONS,

 {Several Good Sorts,}

 1/6 each.

Orange & Lemon Trees.

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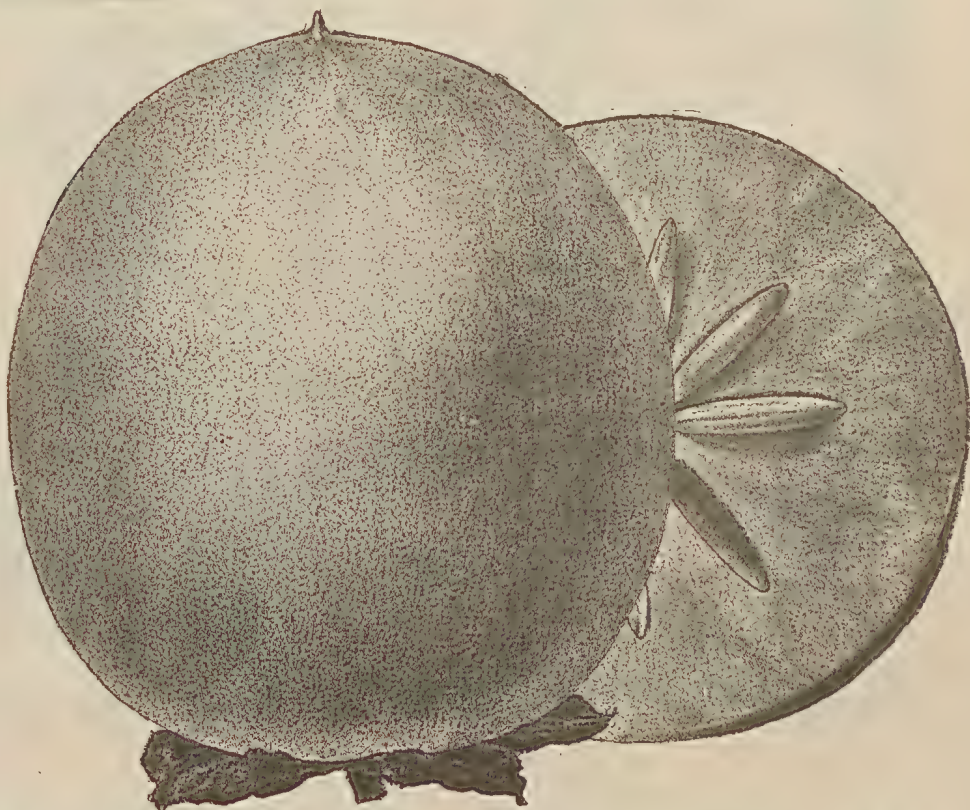
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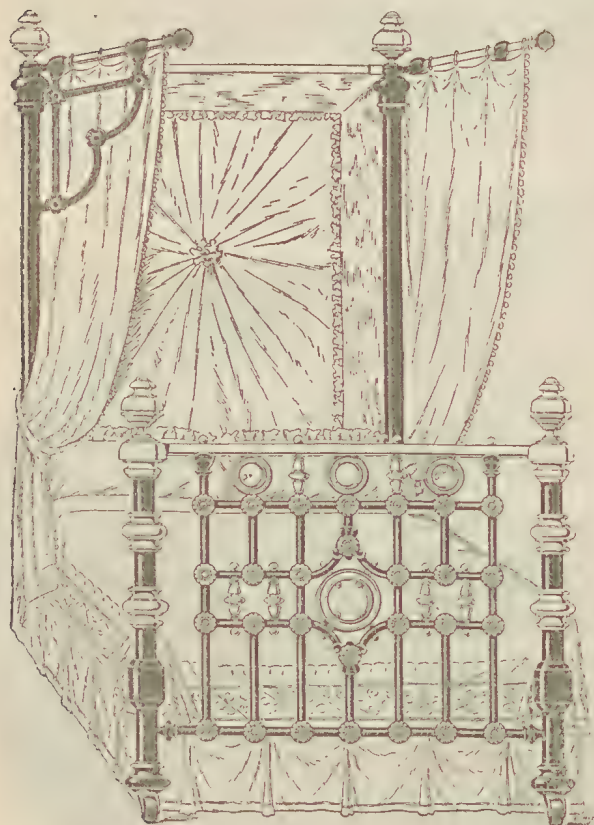


We furnish your Dining Room, as shown, for

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- 4 High-backed Chairs,
- 2 Arm Chairs,
- 1 Couch and Cushions,
- 1 Bamboo Table,
- 1 5-ft. x 3-ft. Table,
- 1 Occasional Table,
- 1 Overmantle,
- 1 Hearthrug,
- 8 yards Floorcloth,
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Full size PARISIAN BEDSTEAD, as shown, 14-inch pillars, Nickel or Brass Mounted, £3 10s.

Lyrphone Phonograph

Price,

12/6



Postage extra, 2s., securely packed

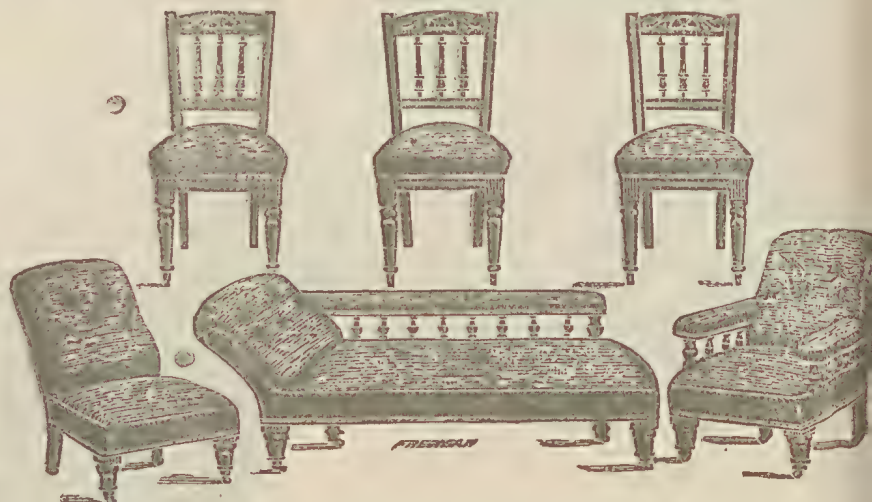
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THE SILENT MOTOR is simple, yet strong, the spring itself being of finest quality tempered steel. The governor, with latest pattern regulator, has complete control of the speed, ensuring a reproduction PERFECTLY IN TIME.

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6-piece DRAWING ROOM SUITE, as shown, beautifully upholstered, £4 15s. and £5 15s.



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Brass Band Instruments & Brass Band Music.

SOLE AGENT FOR

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Importer of Violins, Piccolos, Mandolins, Guitars, etc., and Brass Band Instruments.

WRITE FOR PRICE LIST.

By importing direct from the very best manufacturers for cash R. Correll is enabled to sell the best quality Strings, Instruments, etc., at the lowest possible price consistent with quality. Violins from 10s. to £10. Violin Outfits, 25s., 30s., 35s., 40s., and up to £70. Violas from 50s., Violoncellos from 45s., Piccolos 1s., 2s., 2s. 6d., and with Tuning Slide and extra ferrule 3s. 6d., 4s. 6d., and 5s. 6d., B-flat Fife 2s. 6d., 3s., 4s. 6d., and 5s. 6d. At the Public Schools' Contest, First Prize was won by the School using Flutes supplied by R. Correll.

If you are thinking of forming a Band or an Orchestra, consult R. Correll, who will be pleased to assist you. Brass Band Instruments Repaired. All the latest Songs, Song and Dance Annuals, etc., etc.

Corner Flinders and Hyde Streets, Adelaide.



Color in Butter.

Butter-makers are all agreed that in estimating the general quality and saleability of butter, the color is a point of very definite importance. In the various competitions, judges quite frequently give as high as ten per cent. of the total marks obtainable for the color alone. In the matter of market value the pale, whitish-looking butter, equally with that of a strong saffron color, are both inferior and will command a lower price or a slower sale than butter which possesses the clear, bright golden color which is naturally obtained from the milk of a cow feeding upon fresh pasture grass.

There are, however, many conditions which have an effect upon the natural color which the butter assumes. The most important factor is undoubtedly

the breed of the cow. It is a well-recognised fact that the Channel Islands cattle give the best colored butter of all, and so well is this understood that a frequent practice in England (says the 'Farmer and Stock-breeder') is to introduce into the stud one good Jersey or Guernsey cow for this purpose. Even in a herd of eight or nine cows of another breed the presence of this cow will be indicated by the increased excellence in the color of the butter.

The question of food is one which is well known to have a direct influence on the coloring of the butter. Scarcely any breed of cows will yield butter of the best color on dry feed, and, on the other hand, one or two breeds, when put on fresh pasture, yield a butter of so high a color as to suggest excessive use of artificial coloring, and so cause a deterioration in the market value of the article. The advance of the lactation period also tends to a falling off in the color of the butter, and if this coincides with the use of dry foods, the result is much more marked. Most artificial foods and grain tend to the production of a pale colored butter.

The explanation of the excellent color obtained from the butter of Jersey and Guernsey cattle probably lies in the fact that for many years the matter of selection and breeding has, in the Channel Islands, been carried out with the greatest care, and the result of this careful breed-

ing on systematic lines for a considerable period proves that by care and intelligence animals may not only be moulded to any shape required, but that milking or fattening qualities can be thoroughly controlled. The points of a good milking cow have been tabulated with accuracy, so that the experienced eye can detect in a very few moments and with only the slightest apparent examination whether a cow is or is not a good and rich milker. The size and shape of the udder, the character and trace of the milk veins, the mellow and thin character of the skin, the 'touch' of the udder and the skin generally, are points which indicate, if present the character of the cow at a glance. And without adopting in its entirety the full accuracy of all the minute divisions of the 'escutcheon,' as drawn out in the Guenon system, there are many farmers who have no knowledge whatever of that system yet who unconsciously owe a considerable part of their skill in detecting a good milk cow to the practised observation of the various ways in which the hair and tufts grow and lie, and who really are adopting the points which have been classified by Guen, without, possibly, having as much as heard his name.

The cow should be turned dry from four to six weeks before freshening, but her feed should not stop.

The obtaining of cows of the best possible stamp for dairying purposes in open markets is a very difficult matter.

J. G. ROWELL,

Tailor and Outfitter,

JUST ARRIVED.

The Latest Designs in
Suitings,
Coatings,
Overcoatings,
Trouserings.



*Fancy Vestings in
 great variety.*

*Ladies' Riding Habits
 and Costumes.*

Call and inspect or send for
 Samples.

80 Rundle St., Adelaide

Feeding while Milking.

Most farmers claim that cows will stand quieter and let down their milk more freely if they are given something to eat while they are being milked. But those who have adopted the plan of milking before feeding are seldom, if ever, anxious to go back to the old method of giving the cows something to eat while they are being milked. Few cows seem to be able to divide their attention between the two operations. When the cow has nothing to attract attention she stands quietly when she sees the milker approach. She also lets down her milk more freely than when she is attempting to eat at the same time. The cow that has her head in the manger seldom sees her milker approaching, and the first intimation she has of his presence is when she feels the milking-stool against her flanks. If she has a nervous disposition, which is the case with most good dairy cows, she will either jump or kick, and then continue to annoy her milker by switching her tail until he has finished milking.

If the cow is fed at the same time that she is being milked, she is in so great a hurry to get her feed that she becomes restless, and will not give down her milk readily. To make a change from the old practice of milking the cows while they are eating, to feeding them after they have

been milked, will probably cause much restlessness on the part of the cows, but as soon as they become accustomed to it, which will not take long, they are much quieter than where both operations are conducted at the same time.

Not only is it pleasanter to milk before the cows are fed, on account of their better behaviour, but from a sanitary standpoint the keeping qualities of the milk are much better when the feeding is done just after milking. Dry feeds contain a large quantity of dust, which is thrown into the air by handling and is generally very heavily laden with bacteria. As the dust settles into the milk pail, it carries with it thousands of these bacteria. In addition to this, the restlessness of the cows, resulting from being milked while eating, dislodges dust from themselves as well as from their milker, which, laden with bacteria, falls into the milk.

To have the heifer develop into a profitable cow, her first milking period must be extended as long as possible, in order to produce a fixed milking habit.

In teaching a calf to drink it always is best to use two fingers, holding the two while in the calf's mouth slightly apart.

Vicious habits are easily induced in horses by teasing them when they are in the stable.

The interior walls of the dairy should be kept clean and light-colored. If white-wash is used, a fresh coat should be applied at least three times a year, and oftener if necessary, to keep the walls clean and white. Many spots should not be permitted.



M. L. Tomlinson,

(LATE J. G. ORAM),

Manufacturing Jeweller,

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Repairs to Watches, Clocks, and Jewellery of every description accurately, artistically, and promptly executed at moderate prices.

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BANNERMAN'S
Canadian Pine Cough Syrup



PRICE **1/6** per B.

A GOOD CATCH.

FOR THE CURE OF ASTHMA, BRONCHITIS, WHOOPING COUGH, CROUP, INFLUENZA, HOARSENESS, COLDS, AND ALL PULMONARY COMPLAINTS.

THE BANNERMAN DRUG & MEDICINE CO., MONTREAL, CAN.

To Encourage Art

THE Proprietors of **BANNERMAN'S CANADIAN PINE COUGH SYRUP** offer **SIX PRIZES**, viz., a

First Prize of £2. Second Prize of £1.

Four Prizes of 10s. each.

For the **Best Hand-colored Specimens** of the famous **Canadian Pine Canoe Scene** advertisement, on view on almost every hoarding and in every Chemist's or Storekeeper's shop. There is **no entrance fee**. An Outline Design, on paper suitable for water-color tinting, is enclosed in every package containing a bottle of **CANADIAN PINE COUGH SYRUP**, and this design is to be tinted by *bona fide* scholars of our public schools only. The artist who drew the original will be the judge of the scholars' efforts, and according to his decision the prizes will be awarded as above. The Outline Design for tinting purposes can only be obtained from inside the Cough Syrup Packages. All tinted designs must be completed and forwarded to Agents' address, given below, not later than **October 1, 1908**, at which date competition closes. This will give ample time for scholars in most remote districts to compete for the prizes. Results will be published within a week or two after that date. Further particulars enclosed with each bottle of **CANADIAN PINE COUGH SYRUP**.

BANNERMAN'S
Canadian Pine Cough Syrup
PRICE 1/6 PER BOTTLE.

Is obtainable from all Chemists and Stores throughout the State.

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Note this! Terms in all cases can be arranged.

FIRLE, 3 miles from City—9 acres, 6 rooms, oranges and paddocks, £1,150. A great bargain.

By **HYDE PARK ROAD**, and Penny Section—Detached House, 4 rooms, bath, verandahs, £250. Any terms almost, £20 deposit, 12s. 6d. weekly, principal and interest at 5 per cent.

FIRLE—2½ acres, lovely orangery full bearing, splendid house 8 rooms, etc., stables, pigstye. £1,375.

CITY, close Hanson Street—Detached stone house, 4 rooms, etc. £315.

CITY—Investment, £75 per annum for £1,200. Building could be put there for £1,500 and land given in for nothing.

CROYDON—3 acres close station, rising neighborhood. £150.

NORTH UNLEY—Residence, 8 rooms, bath, pantry, cellarette. Enclosed area, lavatory, stables, trapshed, 1-16th acre. Only 1-8th mile walk G.P.O., close penny section. £890.

CROYDON, close Station—Superb free-stone Villa, 6 rooms, every modern convenience, 50 x 150. £665.

CITY, South Terrace—Well built Villa, 9 rooms, every convenience, large block ground, stables, motor house, concert hall, man's room, etc. Only £1,680.

PORT ADELAIDE—3 shops and 1 room each, brick, almost new, £650. Rents 33s. weekly, rates only £8 yearly. Pays well.

CITY, East Part—2 cottages, 3 rooms, verandahs, £400; rents, 14s. 6d. weekly.

PENNINGTON TERRACE, NORTH ADELAIDE—Residence, 6 rooms, bath, etc., stables, trapshed. £700.



Keep wood ashes in a convenient place so that the pigs can eat all they wish. Ashes furnish mineral matter—potash, lime, soda—which helps to build up the digestion and kills intrstinal worms. If wood ashes are not plentiful, give coal ashes.

A really good brood sow ranks as one of the valuable assets on the live stock farm, and it is well worth while to look properly after her, and accord her such treatment as will ensure her doing well and profitably for her owner.

Skim milk should be fed to pigs if it can be obtained. It may be mixed with the grain to make a thick swill, or if it is desired to feed the grain dry, the milk may be fed separately.

Strong piglings result from an excellent physical condition of the sow and an abundance of milk wherewith to feed them.

Growing pigs need richer rations in winter than in summer, and one that will supply more animal heat.

It is not necessary to keep a large number of sows to supply all the pigs needed for feeding on a single farm. Sows should raise on an average eight pigs to a litter.

The September Show.

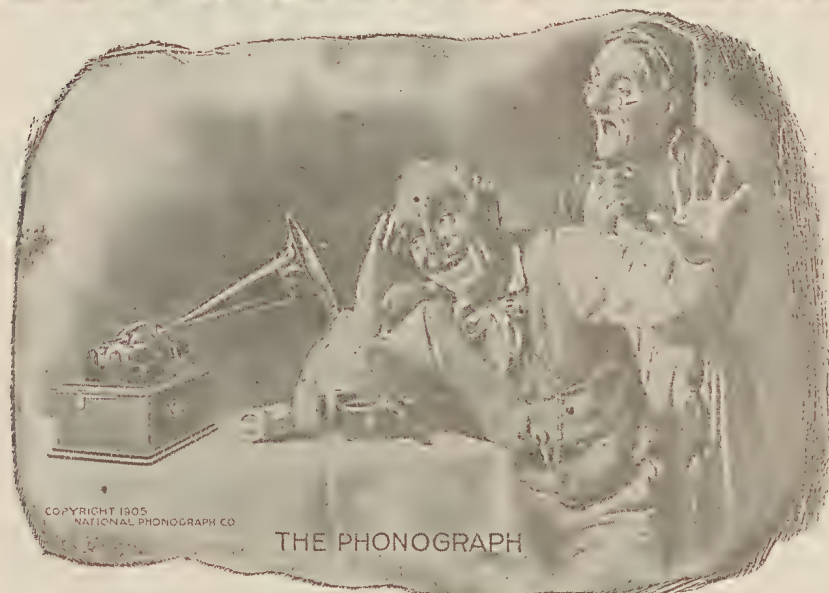
The Royal Live Stock Show in connection with the Royal Agricultural and Horticultural Society of South Australia will be held at the Jubilee Exhibition and grounds on September 9, 10, 11, and 12, when £2,500 is offered in prizes. In draught stock the champion will receive £25 in cash, the Government gold medal, and a chance to win the Murray challenge cup of £21. In the horses-in-action class, for 14st. hunters, the prizes are £15, £8, and £3, and a cup valued £21. For the 13st hunters the prizes are £15, £8, and £3. Then there is an open hunters' class, horses to carry a minimum weight of 12st., for the Urrbrae challenge cup valued 75 guineas, to be won four times, with cash prizes of £40, £10, and £5. The high jump is for the Wendt challenge cup of £25, with prizes of £12, £5, and £2, and 20s. per inch over 5ft. 6in. Valuable prizes are offered for all classes of stock, cattle, sheep, dairy produce, poultry, etc. General entries close on Friday, August 21, at 4 p.m., and entries for horses-in-action close on Friday, Sept. September 4, with the secretary, Mr John Creswell, 29 Waymouth street, Adelaide. Intending exhibitors can truck their stock straight to the grounds, as the train runs into them.

The art of landscape gardening is included in the curriculum of most of the leading universities of the United States of America.



The best method of feeding live stock in a drought, so as to avoid waste of material and unnecessary labour, is a matter of serious import to the pastoralist who is left with a large number of sheep for which the dried-up pastures will not afford the least sustenance. The mode in which the feed is given to the stock is also worthy of consideration. During the great drought a pastoralist laid in a stock of maize for sheep feeding. The maize was soaked in water before it was spread over the bare ground, and the sheep picked up every grain. As the times were bad, and all saving in labour was of consequence, the stock-owner thought he would save the cost of the soaking. The unsoaked maize was duly distributed when he found that he had reckoned without his host, or rather without his flock. The sheep finding the hard grain so much more difficult to masticate than the soaked maize to which they had been used, followed the example so frequently set of late years and struck. They passed over the hard maize, and followed the cart, bleating loudly in protest. A very valuable fodder that has been neglected is molasses. It is not expensive, it is life sustaining, and it greatly aids digestion.

Happiest Hours of Life



THE PHONOGRAPH

are those spent in the home, in easy enjoyment of pleasing melodies.

No need for husband, wife, or children to go to clubs, theatres, or other places of amusement, when home is made bright and attractive by the genuine

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You may appreciate classical music and beautiful compositions though you may not be able to render the same yourself. The EDISON PHONOGRAPH will bring this delight to your house regardless of your personal ability. It is the best response to the constant cry of the human race for something to amuse it. It is **The World's Greatest Entertainer.**

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Ask us to send you Descriptive Printed Matter and Price Lists, posted free.

Edison Gem Phonograph and 12 Gold-mounted Records, £3.

Edison Standard and 12 Gold-mounted Records, £4 19s. Records, 1s. 3d.

EASY TERMS.

Bullock's Cycle & Phonograph Stores,

Head Office—101 Pirie Street, Adelaide.

Branches: Commercial Road, Port Adelaide; Murray Street, Gawler.

People would eat large quantities of apples if they realised what a splendid food they are. They excite the action of the liver and promote sound sleep.

Over thirty years ago a prominent English horticulturist predicted that Great Britain would soon become independent of American, Canadian, and other outside supplies of apples. The importations, however, are now greater than ever known before.

"I am afraid I have greatly interfered with my own practice," said a celebrated aurist, "by giving the following advice to many of my friends—At the first symptom of earache, let the patient lie on the bed with the painful ear uppermost. Fold a thick towel, and tuck it round the neck; then, with a teaspoon, fill the ear with warm water. Continue doing this for fifteen or twenty minutes; the water will fill the ear orifice and flow over on the towel. Afterwards, turn over the head, let the water run out, and plug the ear with warm glycerine and cotton. This may be done every hour until relief is obtained. It is almost invariable cure, and has saved many cases of acute inflammation. The water should be quite warm, but not too hot."

Tobacco cultivation in Ireland has increased from 7,353lb in 1906 to 68,612lb in the year ending last March.

The market is seldom overstocked with the best quality of butter.

Saddlery AND Harness.

THE BEST ASSORTMENT AND
CHEAPEST IN THE CITY.

All Farm, Station, and Stable Requisites.

Repairing in all its branches.

Send for quotes for any article required, and get the Best Quality at Bed rock Prices.

J. SHEPHERD,
SADDLE AND HARNESS MAKER,
IMPORTER, MANUFACTURER, &c.,
158^A Rundle St., Adelaide.

The apple has more phosphoric acid in easily digested shapes than any other fruit, and forms an excellent food for those engaged in much brain work.

In Paris the authorities are going to build a Palace of Agriculture as an agricultural centre for France. It is to be a building worthy of the importance of the industry.

The earth is like a lampwick, full of pores, and the moisture is drawn up by the sun like the flame draws up the oil.

Leaving the ground open and rough promotes the escape of moisture; closing up the top with fine dirt closes up the pores so that the moisture cannot escape.

It is a mistake to think that any land no matter how rich it might have been in the beginning can be cropped year after year and not show signs of loss. Continual growing of any one crop on the same land will in a short time bring about a diminution of yield.

Six big American agricultural implement makers have combined together to get control of the Russian market.

Onions require rich soil, and it is important to see that they are kept free of weeds, especially at the start.

G. BURNETT & SON,

Painters, Paperhangers, Signwriters, Glaziers, and
Decorators,

94 CURRIE STREET, ADELAIDE.

(Late Schoning & Rankin).

All work artistically executed For excellence and durability of work and design we cannot be surpassed. Neatness and promptitude our principle. Renovation of all buildings inside and outside a speciality.

Private Address—Angas Road, Clarence Park.

Answers to Correspondents.

S. B. Kadina.—Your fowls seem to require more warmth. See that they are comfortable at night, give bran and pollard mash in mornings and wheat for their evening meal. Green bone and spices are all well in small quantities. As your fowls are penned up don't forget to give them plenty of green stuff. Comfort and cleanliness with common sense feeding means eggs.

READER.—A fortune awaits the man who invents a method of dealing with old rubber, so as to make it serviceable again.

NOVICE.—A good brine is made as follows:—To 12½ gal of water add 28lb of salt, 7lb of brown sugar, 1lb saltpetre, and ½lb hops. The hops must be infused in 1gal of boiling water, must be the same as tea, and allowed to stand for three or four hours. Strain and add the extract to the pickle.

BUSHIE.—To determine six times the content of a prismoidal tank, find the sum of the top area, and four times the middle area, and multiply the sum by the depth.

INQUIRER.—There is not, so far as we know, a work dealing with the management and breeding of merino sheep in the different conditions of life presented in the widespread regions of Australia.

TIMOTHY.—If you wish to form a permanent flock, why not start with a pure flock. Breeding up from the common

goat is a slow and not a very satisfactory process, as the latter and the Angora are not both fleece bearing.

J.F.T.—The most satisfactory way to preserve hams from the attack of weevil is to use calico coverings, and pack in malt dust or oat husks. Sides of bacon after they have been thoroughly cured may be preserved by being packed in cases, a little lime being sprinkled between the sides.

The amount of money spent annually on milk in the United Kingdom is about £120,000,000.

A horse that is to be used for driving or riding should carry no more extra flesh than is essential to plump muscle and strength, and it should have sufficient exercise each day to harden its muscles and give it good wind.

The walk is the foundation of all other gaits, and without beginning at the foundation all future development will be unsatisfactory.

All profit that comes from a dairy cow, or one being fattened, is derived from the food over and above that which is necessary to sustain life.

There is a difference between sour milk and sweet milk in feeding pigs, and it is very much in favor of the latter.

The best time to determine what shall be done with the brood sow is when she brings her litter and while she suckles it.

Dairying is a profitable business, and you get your pay in cash.

A farmer who carries on dairy farming successfully will secure good returns from it and will have a source of revenue the whole year through.

Charcoal given to animals, especially to poultry and swine, acts upon the blood as a purifier, often being found of benefit when there is no definable disease.

Pigs as a rule take their form from sire and their dam. The brood sows should be selected at weaning time, and raised with a view to their future usefulness.

WHITING & CO.

DYERS, CLEANERS, & PRESSERS,
268 Rundle Street East
(Two Doors from Charlick Bros.)

ALL KINDS OF WORK DONE, viz.,

Gents' Suits thoroughly cleaned and pressed at 5s. 6d.; dyed any color. 7s. 6d.

Ladies' Garments, all kinds, cleaned and pressed. 5s.; dyed, 7s.

All kinds of Silks, Feathers, Gloves, and Hats Cleaned and Blocked.

French Cleaning a speciality.

All Repairs neatly and promptly executed.

We desire to say that we are prepared to guarantee our work equal to anything in the City, and to do all kinds of work at Reasonable Prices.

Give us a trial and prove us.

HOME WORK.

A Profitable Work for the Home.



Just what is wanted.

If you have spare time, **YOU CAN EARN MONEY IN YOUR HOME.**
A new industry for Australian Ladies.

Real Lace making made easy with our Scientific System already worked out in patterns, simple, easy, quick, and inexpensive.

Our System TEACHES YOU TO MAKE LACE IN TWO DAYS. We give you personal instruction.

We want 1,000 Ladies, young and old, to take up our system to make Lace for us. We pay* from 7/-dozen to 360/- per dozen yards.

If you live in the country write for particulars; you can learn our system by post. If convenient to town call and see us at our offices,

**No. 7 Colonial Mutual Chambers,
116 KING WILLIAM STREET, ADELAIDE.**

THE TORCHON LACE & MERCANTILE AGENCY.



MR A. BROWN'S STALLION, "ST. ELMO."

The Farm.

Utilising Alkali Patches.

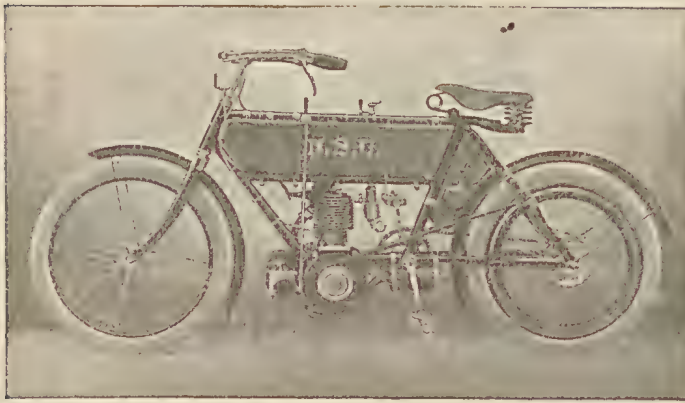
In some parts of the State there are, in the midst of the rich fertile black soil lands, patches of alkali soil, on which it was once believed that nothing would thrive. Such isolated areas existed on lands near Warwick, and the manager of the State farm, the Hermitage—then Mr. Chas. Ross, now managing Westbrook State Farm—set to work to remedy the evil. His experiments met with complete success, and yet the remedy was so simple that it is remarkable nobody had thought of it before. He knew that there were certain plants which could absorb a large amount of alkali, and especially amongst them he included mangolds and the silver beet. These grew to perfection on the alkali patches, and removed so much of the salt that in time the land was rendered fit for wheat, lucerne, and other grasses. Lucerne, it was found, also thrives on the alkali after mangolds, or at once, provided the surface be fairly

free from alkali. Under such conditions the seed germinated, and the roots made their way to a considerable depth below the alkali strata, and thence drew ample nourishment for the plant. On the other hand, whilst magnificent cabbages, cauliflowers, and other vegetables were grown on the farm, they were a failure on the alkaline spots, as were all other legumes. It is said that asparagus will do well on such land, being alkali-resistant. This plant was, we believe, not experimented with.—Queensland Agricultural Journal.

Ground Lime v. Ground Limestone.

In recent years the common practice of applying heavy dressings of quicklime to the soil has fallen into disuse. The idea underlying that practice was to make provision against 'lime-hunger' for a good number of years. But if there be one thing which has been more clearly proved than another by the agricultural experiments of recent years, it is the fact that heavy dressings of quicklime were unprofitable. For one thing the quicklime when applied in large quantities, killed off a large proportion of the nitrifying and other advantageous soil bacteria. For another thing, lime sinks rapidly in the soil, and through the action of rain water it is carried into the drains or the subsoil, so that as a rule it is soon beyond the reach of the plants. In recent years the much more rational plan of applying small dressings of ground quicklime has been introduced, and has generally given very satisfactory results, particularly in soils which were rich in organic matter. This ground quicklime was applied in

dressings of up to 20 cwt. per acre, and this small quantity was readily utilised by the soil bacteria for the use of the growing crop. Lime is an essential element of plant food, and every crop grown on any soil removes more or less lime from that soil. In the case of soils infected with the germ of the finger and-toe disease, the ground quicklime, which can be very equally distributed over the soil, may be used to kill these malign germs, and induce a healthy growth of crop, particularly when the lime is buttressed with potash, and no acid manures are used in dressing the soil. It is a curious fact, however, that quicklime, whether ground or in the 'shell' form, is produced from limestone—a hard rock in which the carbon dioxide of composition is driven off by burning, and that the quicklime, on being exposed to the air, absorbs this same gas, and is again converted to carbonate of lime. These facts have raised the question as to whether the ground limestone rock might not be ground to a fine state of division and applied to the soil just as quicklime is. This question has been dealt with experimentally by the staff of the Lancashire County Council, who have issued a report of experiments on the subject by Mr. Edward Porter, B.Sc., and Mr. R. C. Gaut, B.Sc. The report states that quicklime in the 'shell' form and also in the form of ground lime were tested against limestone which had been ground to a fine state of division. Quicklime, on reabsorbing the carbon dioxide and reverting to the carbonate form, increases greatly in bulk, so that 1 ton of it will weigh when converted into carbonate of lime. 1½ ton. One ton of 'shell' lime, therefore, was tested against 1 ton of ground lime—



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THE RELIABLE

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MOTOR CYCLE

Climbs Hills 28 miles per hour without pedal assistance.

The ENGINE TESTS recently held resulted in the Celebrated N.S.U. MOTOR CYCLES being FIRST, SECOND, and THIRD out of thirteen competitors. This was at the South Australian Automobile Club's Annual Hill Climb, when we also secured Fastest Time for the Second Year in succession.

This Contest is the Only Motor Cycle Engine Test that has been held in South Australia this year. We can prove this.

EYES & CROWLE, 125 and 127 Pirie St, Adelaide.

stone, while a 'no-lime' plot was kept for 'control' purposes. These tests were carried out on four different farms, and the results were singularly uniform, the balance being decidedly in favor of ground lime as compared with shell lime, and rather decidedly also in favor of the $1\frac{3}{4}$ ton of ground limestone as against the 1 ton of ground lime. The difference in price was also in favor of the ground limestone, as the 1 ton of 'shell' lime cost 14s. 2d., the 1 ton of ground lime cost 22s. 2d., while the $\frac{3}{4}$ ton of ground limestone only cost 13s. 8d. Alike, as regards both price and produce, therefore, the balance was in favor of the ground limestone, which has the further advantage that it has no irritating effects on the eyes and the nose, and drops to the ground more readily than ground lime from a mechanical sower. If these results are confirmed by further experiments on a large scale, it seems more than likely that the use of limestone ground to a fine powder will make rapid headway in the favor of agriculturists.

To Cure a Jibbing Horse.

The 'Nor'-west Farmer' gives the following as a certain method of overcoming the jibbing habit of a horse:—Whipping such a horse is generally of no use. Different horsemen have different ways of treating balky horses. One of the most successful ways of making a balky horse work is to hitch him to a tried and trusty animal that will pull up steadily but surely. Take a small stout cord—a small rope is good—and fix it with a noose around the tail of the balky horse after the fashion of a crupper. Pass the free end of the rope over the horse's back and tie it to the large hame rings of the

other horse. Have the rope adjusted right as to length, and then start the old horse up quietly. Mr. Balky Horse will perhaps lean back in his collar and not budge an inch, as was his usual custom. This will not continue long, however, for he will soon feel that noose tightening on his tail, and then more he pulls back the tighter the noose draws and the harder the rope pulls at his tail-head. It will take just about ten seconds, if the rope and noose are fixed properly, to convince any balky horse that he has become addicted to a bad habit of which he should speedily rid himself. He will give a jump, and may land 3 or 4 feet ahead of the other horse, and perchance lean back in his collar again, but just as soon as that noose begins to draw on his tail Mr. Horse will begin to move, and after two or three times backing up on the noose he will walk right off, and, with most horses, the balking habit will be completely overcome. This treatment will not injure the animal, but it will teach him a valuable lesson which is hard to learn in any other way.

We have seen a confirmed jibber induced to move along by simply passing a rope round his knee and pulling gently on it when the leg is lifted.

Agriculture is an art as well as a business, and the real farmer is an artist.

The lay of the old speckled hen is more inspiring to the farmer than the lay of the spring poet.

The winnower is probably the most useful implement that is used upon the farm in proportion to its cost. While it is useful in preparing grain for being marketed, its highest use is found in preparing grain for sowing.

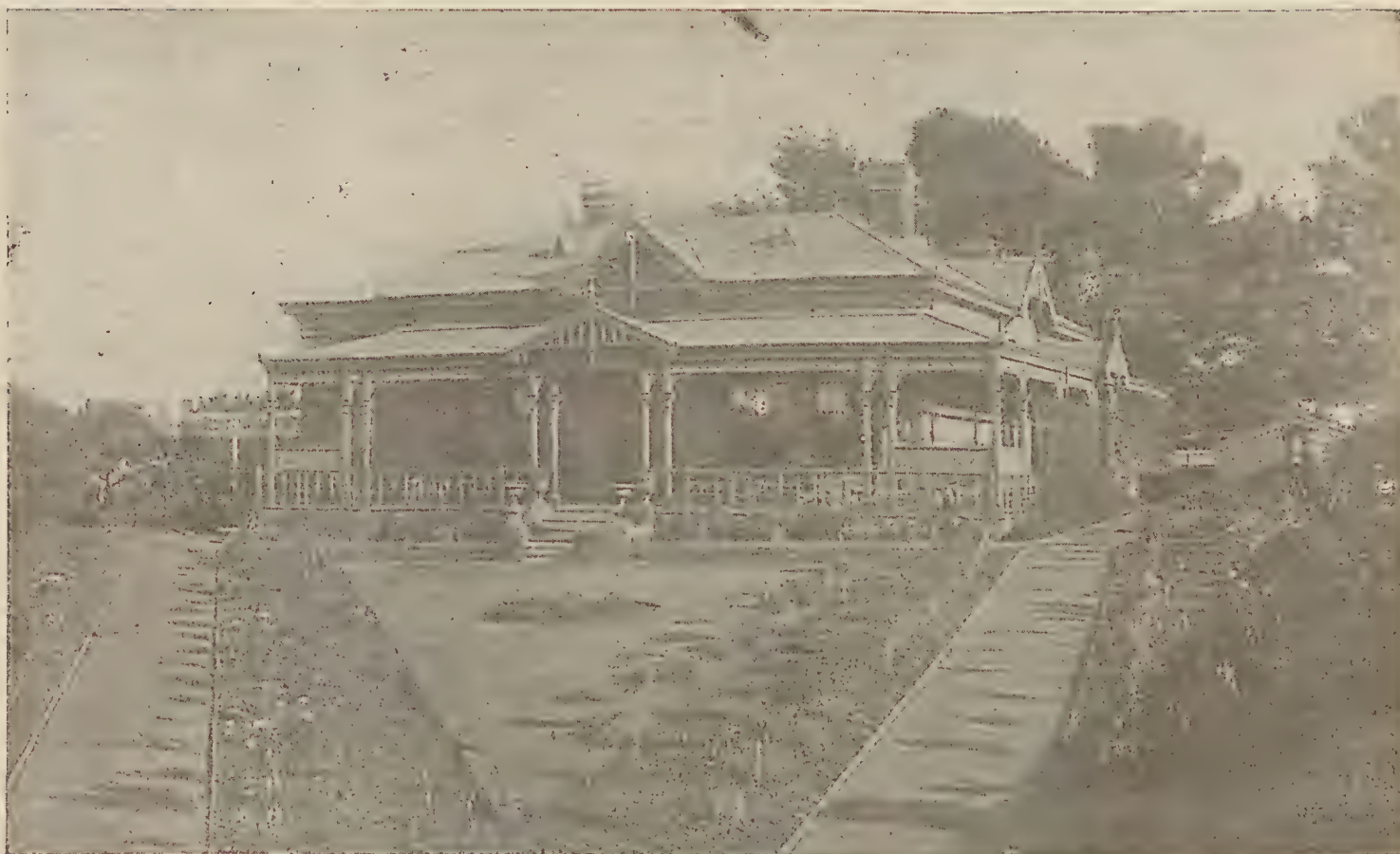
All experience proves that a small area of land properly worked pays better than a large acreage imperfectly tilled.

Whenever a thorough preparation of the soil is made before sowing it will admit of a more careful tending of the plants during their earliest stages of development.

Many a good farmer has been spoiled to make a poor lawyer or a poor preacher. The fault lies with our educational system, which fits the boys only for the professions. The boy gets started into a profession and finds himself unfitted for it, and the result is that he gets out of sympathy with the world and mankind.

How very seldom do we find a decent set of tools upon the farm; most farmers have a handsaw and tomahawk which comprise their entire stock. It is just as essential that the farmer have a good set of tools and possess a fair knowledge of how to use them as it is to understand the methods of agriculture and stock raising, or any part connected with the farming.

THE PROPHET'S MARES.—Mohammed according to tradition, set great store by the readiness of horses to obey any signal to which they had been accustomed, and he selected mares for breeding purposes by a test of their obedience. He shut up a drove of mares within sight of water, and kept them without drink till they were almost famished with thirst. Then the drove were released, and naturally started at a headlong gallop for the water. When they were in full flight a trumpet sounded the 'halt.' Only five, some say three, mares obeyed the call and stopped, the rest being intent on assuaging their thirst. The three obedient mares were chosen as dams, and honored by the title of 'The Prophet's Mares.'



Mr. J. H. Weidenhofer's Residence.

Killarney—Pale pink shaded flesh and white; long pointed flowers.

La France—Beautiful bright lilac, rosy centre; very large and full; very free bloomer; a good bedding, decorative Rose.

Madam Cusin—Rose-purple with yellow base to each petal.

Striking Rose Cuttings in Water.

The number of subjects that can be rooted from cuttings in water is much larger than is generally credited. Amongst them are roses, although they are seldom increased in this way. As a novelty it has its interesting features. A mode of striking cuttings of this kind in bottles of soft water is a plan as simple as it is practicable, inasmuch as cuttings taken off at any time during the summer will not root in this way in from five to six weeks, after which they should be potted carefully in light sandy soil, and placed in a cold frame for a week or so until established, when they are ready for planting where wanted. The cuttings should be cut clean below an eye or joint and none of the bark bruised. It is a help to make one or two other cuts be-

tween the lower eyes, but low enough to be under water. The bottles may be of any convenient size, and may be placed in the greenhouse or room window, as the only attention they require is the filling up of the bottle with water as it evaporates. Another plan after rooting is to fill up the bottle with a compost of light soil, and then pour off as much as possible of the water. When the soil is fairly dry the bottles can be broken, and the young plants potted on. *Impatiens* Sultani, English Ivy, *Nasturiums*, and many other things will readily root in this way.

THE ALEXANDRA TEA ROOMS.

Mrs. Griffin, the proprietress of the Alexandra Tea Rooms, is the widow of the late J. G. Griffin, who acted for 15 years as head representative of Wilkinson and Co. The whole of the requirements of the cafe are manufactured on the premises under special supervision, the very best of everything being used in their preparation. There is a competent staff of waitresses, and the saloons consist of gents' smoking (upstairs), with lavatories, etc., ladies' room, balcony, shades, and ladies' room downstairs, with lavatories and every convenience.

In our advertising columns we wish to draw our subscribers' attention to a studio that to-day ranks as one of the most flourishing in Adelaide (we allude to the Ideal Studio, 143 Rundle street, near Fitch's). During the past twelve months, since Mr. John Dunn became proprietor, the business has steadily increased, and to-day the number of clients being photographed daily compares favorably with any other studio in the city. The success is due entirely to the good work executed by the studio, and Mr. Dunn's long experience (over 12 years) with the Fruhling studios and Stump & Co. has enabled him to offer to the public the most artistic and up-to-date photographs. We have visited the studio and we can honestly recommend our readers to 'The Ideal' when about to be photographed. The photographs are finished most artistically at prices to suit all from 3s. 6d. upwards.

E. BLACKEBY,

BOOT & SHOE MANUFACTURER,

226 Rundle St., Adelaide.

CUT SOLES A SPECIALITY.

Enemies of the Rose.

A valuable little book with the above title has been published by the National Rose Society of England. It contains excellent colored illustrations by Miss Beard, also some wood-cuts, and these should assist the rose-grower in identifying the various pests which are likely to attack his plants. This useful handbook is not for general sale; it can only be obtained through a member of the National Rose Society, and its price is 2s. 6d. The treatment and remedies recommended for Great Britain should be equally valuable in Australia.

The numerous diseases caused by fungi,

of the numerous pests and how best to combat them are now pretty well understood, and all that is required is watchfulness and prompt action when the pest is discovered. The remedies to be applied are simple and inexpensive.

A chapter on 'Diseases Caused by Fungi' is contributed by Mr. G. Massee, Plant Pathologist, Kew Herbarium. Spraying for fungus trouble is purely preventive in its action. No disease can be cured by spraying. Spray in anticipation of disease, and do not delay until too late. Mildew is present throughout the season every year in greater or less abundance, but as a rule there are two marked waves of disease—one in the

pendes on the presence of winter spores that are formed on the white patches of mycelium growing on the wood. Every patch of mycelium should be scraped off and burnt. All fallen leaves and those that remain on infected branches should be collected and burned. All bushes that have been attacked by any kind of fungus whatever should be thoroughly drenched with a solution of sulphate of copper—one ounce in two gallons of water. The surrounding soil should also be similarly treated. This wash must be applied during mid-winter, before the leaf-buds begin to swell, otherwise the foliage will be destroyed.

Rust of the rose may be prevented by



the number of beetles, bees, sawflies, moths, scale, insects, aphides, frog hoppers, leaf hoppers, thrips, red spider, etc., which attack the rose amount to quite a prodigious number, almost sufficient to deter the tyro from starting to cultivate the queen of flowers. Fortunately, the nature

spring, the other appearing soon after midsummer. Cleanliness is of great importance. The extension of mildew depends on summer spores produced on the leaves being conveyed by wind and other agents to other healthy leaves, and the appearance of mildew the following season de-

spraying the bushes just when the leaves are expanding, with a solution of potassium sulphide, or liver of sulphur; dissolve half an ounce of this in a gallon of water, and if a tablespoonful of liquid glue is added to each gallon of solution it will adhere much longer to the foliage.

Black spot is amenable to the same remedy, it should be commenced in the spring and continued at intervals.

Aphis on the rose may easily be kept in check by spraying. A strong corrosive wash is not necessary. All that we have to do is to block up the breathing pores, and so asphyxiate them. This may be done with simple soft soap and water. For the spraying the best soap must be obtained and do not use more than 1lb. of soap to 25 gallons of water. To this may be added 2½lb. of quassia chips. The wash is made by dissolving the soap in boiling soft water; boil the quassia chips or let them simmer for about 12 hours, adding water enough to keep

with cold water, but when the attack is very severe tobacco wash may be used. The following day use plain water again. For red spider there is nothing better than two or three sprayings with liver of sulphur at an interval of a few days. Rose scale may be destroyed by using kerosine emulsion a little after midwinter, but spraying several times with soft soap and quassia when the larvæ are appearing will prove quite as effective.

Space permits us only to deal with the more pronounced enemies of the rose. Beetles, moths, sawlice, grubs, etc., are all more or less injurious, but they are less common than those subjects we have referred to.

Bonquet d'Or—Pale yellow, centre coppery; large full.

Climbing Meteor—A strong climbing sport from the well-known dwarf variety of the same name.

Duke of York (Hybrid China)—Flowers variable, between rosy pink and white; sometimes pale with deep red centres; sometimes white-edged and tipped with deep carmine, but always beautiful and quite distinct; excellent for cutting.

Exquisite—Flowers bright crimson, shaded with magenta; large, full, and globular.

Fairy—Deep red, very small; fine for edging.



them covered every now and then, strain off the liquid extract and pour into the dissolved soft soap and well stir, and lastly add the full quantity of water of dilution. Spray twice on two consecutive days.

Thrips often do great damage to roses. The best treatment is copious syringing

A List of Good Roses.

Antoine Rivoire—Rosy flesh shaded and edged with carmine, base of petals yellow, large full.

Aurora—Centre of flower rich bright salmon pink, shading paler towards the outside, large full and imbricated.

Georges Farber—Dark red.

H. M. Stanley—Clear pink, sometimes tinged with salmon, large finely formed flowers; beautiful buds.

Innocente Pirola—Cream color, centre shaded with yellow; full and globular.

Jean Pernet—Beautiful bright yellow, changing to clear yellow; large and full.

A. H. FRISBY,

* Ladies' - and - Gentleman's - Tailor, *

GAWLER PLACE,

(OPPOSITE MACROW & SON).

Late of Bond Street, London, also Western Australia, and late Head Cutter C. J. Lane & Co.,
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Only the Very Latest and Superior Quality of Materials stocked.

All orders are executed under the personal supervision of Mr. Frisby, and only skilled workmen employed.

Trial Order respectfully solicited. Correspondence promptly attended to.

Testimonials from Distinguished Patrons, which appear on other pages.

Note the Address—

A. H. FRISBY, Gawler Place, opposite Macrow & Son.

A strain of horse that has once gained a reputation for hardiness and stamina is held in high esteem by the buyer.

Give a colt plenty of room for exercise in order to harden his muscles and stimulate his appetite, and he will grow faster and make a better horse when matured.

Bred to race is a term often used in connection with thoroughbred stock, and yet we may frequently notice that animals bred carefully—even scientifically—fail to win anything appreciable. They represent so much capital lost in a sporting enterprise.

Salt should be kept where the animals can obtain it at all times, but it should never be mixed with their feed. The animals can tell better than the owner how much salt they need, and if it is mixed with the feed there is a liability of getting too much.

Insurance of live stock is a form of co-operation which has been successfully adopted among both cottagers and allotment-holders in different parts of England.

Horses are increasing fast in numbers in the United States. The expansion is commercial and industrial lines, the establishment of great manufacturing, the increase by millions of acres in the areas devoted to agriculture, have all contributed to broaden the demand for horses faster than they can be produced.

Up-to-date Tailors



We have a large stock of Woollens to choose from.

Fit and workmanship guaranteed.

Also, a large stock of Gents' Mercery to choose from, which can be purchased at 20 per cent. less than elsewhere.

Self-measurement forms supplied on application.

While pigs may live on grass they will hardly thrive on grass alone.

Any weakness in the legs is a great objection in a breeding pig.

Whenever a pig is going backward he is losing his owner money.

It will not always do to condemn a sow because she is lazy and sluggish.

The health of the pig is the most important point in securing a profitable growth.

Ground barley and skim milk cannot be surpassed for feeding sows just after farrowing, as it produces a great deal of milk of fine quality.

Highly-bred sows are not, as a rule, in the best state at fattening time to give the young litter a good start. The pig is an animal that is an important factor in diversified farming, and can be fed with skim milk or whey on a dairy farm to advantage.

A. BROWN & CO.

15 CENTRAL MARKET.

The production of currants in South Australia last season was 1,475,099., and the total value of currants and raisins was more than £75,000. The quantity of wine made annually in South Australia is about 2,500,000 gallons.

Undertakers.

HADDY, J. C., & SON, Funeral Directors and Carriage Proprietors. All Funerals conducted under personal supervision. 113 Flinders St., Adelaide. Phones—Adelaide 1677, Port 110, and Semaphore 255. and Jetty Road, Glenelg. Phone 78.

The Australian Gardener. NOTICES.

THE AUSTRALIAN GARDENER has become so popular and the circulation has grown so much faster than our advertising receipts, that we are compelled to increase our charges for advertisements, which may be handed into our office on and after the first of September, 1908. Advertising came and stayed, because THE AUSTRALIAN GARDENER is a wonderfully effective medium, in city, suburbs, country, State and inter-state. We are preparing a series of articles for the September issue and Show. We are glad we have a large beautiful journal with a splendid advertising patronage, and the publisher who overtakes us will have to be sound in wind and limb and powerfully speedy.

The public are notified that a sample copy of this journal will be sent to anyone asking for it, and if satisfaction is given, send along 3s. 6d. for a year's supply, post free.

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All Business Communications must be addressed to

THE MANAGER of

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Corner of Pirie and Wyatt Streets,
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Contributors.

All letters, manuscripts, and matter intended for publication should be addressed to the Adelaide Office, corner of Pirie and Wyatt Streets, Adelaide, and in order to appear in the following issue should be posted to reach Adelaide by the 20th of the current month. It is necessary that correspondents should furnish their names and addresses.

Advertisers.

Particulars of rates will be supplied on application.

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The subscription rate is 3/6 per annum, posted to any address in Australasia.

Subscribers are asked to notify the Adelaide Office if they do not receive their copy of the paper; also any alteration of address.

F. W. PREECE,

For 20 years with Messrs. E. S. Wigg & Son,

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THE FEEDING OF ANIMALS, 3rd ed., 1905, by W. H. Jordan. 6s.; posted, 6s. 5d.

PRACTICAL GARDEN BOOK, 4th ed., 1904, by C. E. Hunn and L. H. Bailey. 4s.; posted, 4s. 4d.

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Principles of Agriculture, 10th ed., 1906. 8s.; posted, 8s. 11d.

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Horticulturists' Rule Book, new and revised ed., 1907. 3s. 6d.; posted, 3s. 10d.

The Forcing Book, 6th ed., 1906. 5s.; posted, 5s. 4d.

The Pruning Book, 7th ed., 1906. 6s.; posted, 6s. 6d.

36 King William Street. 36

THE AUSTRALIAN BEE BULLETIN

A Monthly Journal devoted to
Bee-keeping.

Edited and Published by E. TIPPER, West Maitland; Apiary, Willow Tree, N.S.W.

Circulated in all the Australian Colonies New Zealand, and Cape of Good Hope.

Per Annum 5s., booked 6s. 6d., in Australasia, outside N.S.W., add 6d. postage.

A five-horse power engine is to be employed to produce strawberries, by the aid of electric light, at the Botanic Society's Gardens, London, and an arc lamp will be made to travel continually across the beds in which the plants grow, the object being to supply both light and heat.

Another American invention. Mr Wheeler, of Middleburg, claims to have invented a potato that requires no cooking, and grows on vines like a tomato. His invention would be all right except for the fact that the plant isn't a potato.

WILLIAM CARR,

Furniture Manufacturer
and Repairer,

Locksmith, Saw Sharpener.

Carpets Cleaned and Relaid.

All work artistically and promptly executed,

Country orders attended to on shortest notice.

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GEO. K. A. GOSLIN, Manager

(Late with R. McCubbin)

Under new management. Completely renovated. No waiting. Cleanliness and civility maintained.

Best Brands of Tobacco, Cigars, and Cigarettes stocked. A trial solicited.

All papers. Agent for the 'Australian Gardener.'

MY JEWELLER.

G. W. Cox,

FOR

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AND

CLOCK REPAIRS.

Good Work at Moderate Charges.

Watches Cleaned from 2s. 6d.

A well-selected stock of Watches and Jewellery at fair play prices.

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Beehive Corner

COMMERCIAL AND ORNAMENTAL PRINTING of every description in first-class style, on the shortest notice, and at cheapest rates, at the "Australian Gardener" Office, corner of Pirie and Wyatt streets.

A crop of peas or other leguminous plants, comprising beans, vetches, etc., will put into the ground a store of nitrogen.

The stallions should have regular exercise to develop health, vigor, and good reproductive powers.

THE PIANOLA PIANO

(WITH THEMODIST),

The Piano of the Future.

The Piano that Everyone can play.

Playable by Piano or Pianola Music Roll.

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We will take your existing PIANO as part payment.

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The time has passed to speculate upon the future of the Pianola Piano. It is here to-day as the most successful innovation in musical instruments.

You may have your choice of four old-established Pianos of high reputation.

THE WEBER
THE STECK

WHEELLOCK
STUYVESANT

As a straight Piano or Pianola Piano.

PADEREWSKI'S choice of Pianos is THE WEBER.
RICHARD WAGNER'S choice was THE STECK.

Manufactured and sold only by the

Pianola Company Propy., Ltd.,

38 King William Street, next Rundle Street Corner.

The Young Folks.

Little Lights.

"I am only a glow-worm that no one will mark,"
It said as it lighted a small lamp at dark.
"My lamp is so feeble, my gleam is so small,
The great world for me is not lighter at all."

But a lady-bird came that had lost its way home.
And close by the glow-worm it happened to roam;
And it said, in its passing, "Good-night, oh, good-night.
And thank you, oh thank you, so much for your light."

I am only a star that at even doth shine,
What light is so faint or so feeble as mine!

I warm not the lily nor light up the rose,
And never a flower for me lovlier blows,
But a sailor that wandered afar o'er the deep,
Looked up at the star when all else were asleep;
And as the ship sailed o'er the ocean's white foam,
He knew by the star he was steering for home.

"I am only a sunbeam," it said at the dawn,
As it sparkled and shone on a flower in the lawn;

"I've travelled and travelled so far from the sun,
And what can a beam do that only is one?"
But the flower held a dewdrop left there by the night,
And the sunbeam shone through it all radiant and bright,
And it glistened and glittered till all that did pass
Saw the dew, like a diamond, shine bright in the grass.

The Wonders of Cellulose.

The commonest thing in the every-day vegetable world is cellulose—the material of which are made the cell walls of every plant. Cellulose, says Prof. R. K. Duncan in 'Harper's Magazine,' which makes up one-third of the plant life on the globe, is capable, like gold and silver, of resisting the efforts of time. When pure, it neither rusts nor decays, but can endure through all generations. Yet, common as it is, it is one of the least understood of substances, and its greatest wonder is the fact that every tiny chip of knowledge we have been able to extract from it has led to the establishment of some new industry and has added enormously to the resources of mankind.

Linen is almost pure cellulose, and so is cotton, and so is silk; yet although the chemical substances are the same, their structure is very different, and their qualities vary with the structure. The paper on which this paper is printed is

made from cellulose—and this would be true whether it were linen or cotton or wood-pulp paper. It can be extracted either mechanically or chemically from the wood. Wood cellulose is not as good or as lasting as cotton cellulose. The chemist cannot distinguish wherein the difference lies, yet a fortune awaits the man who can discover how to make the one as good as the other.

The entire cotton industry is based upon cellulose, and it seems as if it were a mastered science; yet so little do we know about the basic material that even a simple discovery in connection with it can still open the doors to drastic changes. John Mercer discovered that if a piece of cotton, which is pure cellulose, be placed in a strong solution of caustic soda, the cellulose unites with water, the cotton shrinks twenty per cent. and becomes fifty per cent. stronger, and it has greater dyeing capacity. But if it be kept under tension so it cannot shrink, the whole fabric assumes the sheen of silk. A great industry has sprung up in the manufacture of "mercerised" goods.

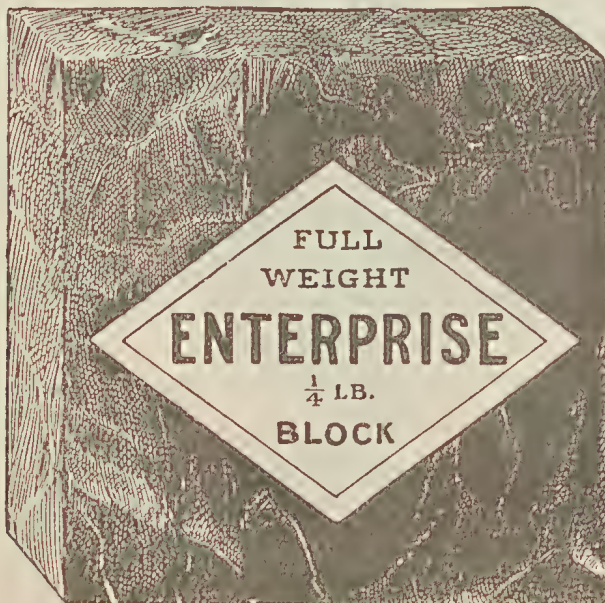
Linen, cotton, jute, and hemp are common fibres of commerce, all pure cellulose, which we have learned how to use; but there may be, in any field of weeds, a dozen or a score of plants of equal value and utility could we but master the secret of their chief component and learn thus to utilise them.

Cellulose will dissolve in a hot solution of zinc chloride, and makes a sticky syrup. When forced through a tiny orifice into alcohol, this syrup precipitates a fine thread, which, when carbonised, makes a filament of for incandescent lamps. Paper soaked in the solution and worked up, forms "vulcanised fibre." Dissolved in another solution, cellulose forms a material which renders goods dipped in it water-proof, and such goods pressed together form bullet-proof sheets, such as were used for barricades in South Africa. Dissolved in nitric acid, the cellulose forms gun-cotton, a high explosive; by a slightly different treatment it becomes celluloid, and by another, collodion.

One of the newest and most wonderful of its uses is in the manufacture of artificial silk from "viscose," or cellulose mercerised and dissolved in carbon disulphide. Forced through tiny holes by tremendous pressure, it issues in threads which solidify and are led to bobbins, eventually passing through the spinning and weaving processes to emerge lustrous silken goods—'Youth's Companion.'

Among the geographical questions was the following:—"Name the zones." One promising youth of eleven years, who had mixed the two subjects, wrote:—"There are two zones, masculine and feminine. The masculine is either temperate or intemperate; the feminine is either torrid or frigid."

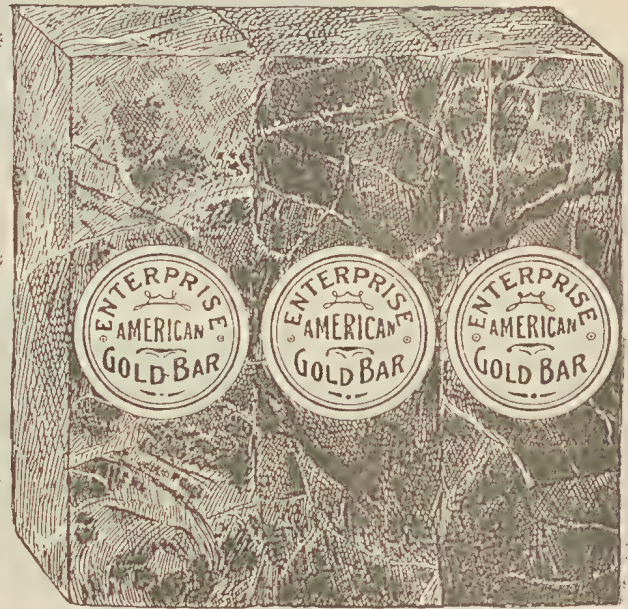
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The Bug with a Mask.

There is a funny little creature that wears a covering all over his face just like a mask. And what do you think it is for? Let us see. Perhaps you have seen the beautiful dragon-flies that look so much like humming-birds and butterflies too. They have broad wings, as thin as a fly's, that glitter like glass in the sunshine. Their backs are just like blue steel.

You will always find them in the hot summer months flying through the fields, or over ponds and rivers. In the country they are called "devil's darning-needles," because they are so slender perhaps. The French people call them "de-moiselles," which means ladies.

Now this handsome, swirt creature grows from an ugly bug, that crawls over the mud at the bottom of the pond. And this is the way it comes about. Little,

white eggs are laid on the water, the ripples carry them far away, and then they sink into the mud. The warm sun hatches them, and from each egg creeps a tiny grub of greenish colour. They are hungry creatures, with very bad hearts. They eat up every little insect that comes in their way. They are very sly, too. They creep toward their prey as a cat does when she is in search of a rat.

They lift their small, hairy legs, as if they were to do the work. It is not the legs, but the head that does it. Suddenly it seems to open, and down drops a kind of visor with joints and hinges.

This strange thing is stretched out until it swings from the chin. Quick as a flash some insect is caught in the trap and eaten. This queer trap, or mask, is the under lip of the grub. Instead of being flesh like ours, it is hard and horny, and large enough to cover the whole face.

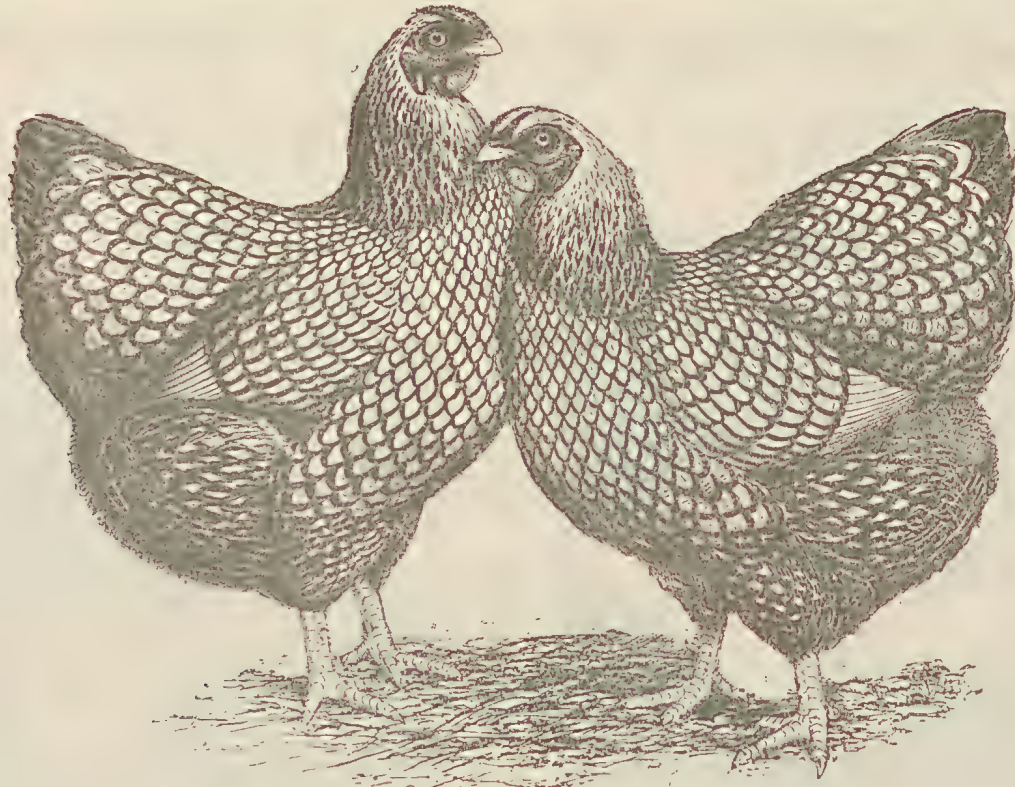
It has teeth and muscles, and the grub uses it as a weapon too.

It is nearly a year before this ugly looking grub gets its wings. A little while after it is hatched four tiny buds sprout from its shoulders, just as you see them on the branch of a tree. These are really only watery sacs at first. Inside of them the wings grow slowly, until you can see the bright colors shining through.

Some morning this hairy-legged little bug creeps up a branch. Then he shakes out his wings, and flies away into the air, a slender, beautiful dragon-fly.

I have told you of the only creature in the world that wears this curious mask.
—Mrs G. Hall.

HAIR RESTORING. — 'What are you doing, Jack you naughty boy?' 'Well, I'm just cutting some of Susie's hair off (she says she doesn't want so much) and sticking it on to dad's head, 'cos he hasn't got any.'



❖ The Poultry Yard. ❖

Diseases of Fowls.

(Continued from last issue).

RHEUMATIC TROUBLES.

This general description includes the several forms of limb trouble to which fowls are subject, because at first sight they are not easily distinguishable from one another, but as a rule, the treatment is the same. The different ailments are rheumatism, leg-weakness, and cramp.

Rheumatism may be said to arise from blood impurities, which if not removed, form deposits in the limbs, and these deposits constitute what is known as gout. Poultry which are reared in confined places, where the amount of exercise is limited, or where kept in damp places, or roost in damp houses, are most likely to suffer from the complaint. The treatment which is effective for rheumatism and gout consists in giving some saline aperient, such as Epsom salts, to clear the system, using a little stimulating liniment, in order to revive the muscular action, and dissipate any deposit that may have a tendency to form.

The legs should be first well bathed with warm water, and then rubbed briskly with a mixture of turpentine or salad oil. The fowls should have good and nutritious feeding during the time of treatment.

Leg-weakness is of several kinds, and before dealing with the usual forms of it,

it may be well to mention that sometimes young hens lose the power of their legs after laying, and this must be carefully distinguished from the ordinary leg-weakness, and usually occurs more suddenly,

A young hen may have laid, or went to lay, and she may quite unexpectedly lose all power from her legs, and remain squatted down, unable to move. This indicates muscular trouble in the egg organs, to overstraining in laying a double-yolked egg, inflammation, or other causes.

Leg-weakness proper affects young poultry for the most part, and is due to constitutional weakness, improper feeding, etc., and appears in cockerels more than in pullets, and usually in those of between 3 and 5 months of age. It is particularly prevalent with the heavier breeds, and those of the long-legged varieties which require a considerable amount of bone in their long limbs to support the weight of their bodies. The bird is more or less incapable of holding itself up, and frequently sinks to the ground, and often is unable to stand. The weakness is frequently due to a forcing diet. To obtain this bone-forming substance it is necessary that the birds should be specially fed on suitable nourishing foods—barley, ground raw bones, and meat, with plenty of fresh green food.

The best treatment is to administer pills composed of phosphate of lime, 5

grains, sulphate of iron, 1 grain; sulphate of quinine, $\frac{1}{2}$ grain; strychnine, 1-15 of a grain. The above quantity will make a dozen pills, one of which should be given each day. The fowls should be kept in a dry place, and allowed to rest on soft hay or straw.

Cramp, another form of leg-weakness, due to defective circulation, and brought

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Yes, if you REGULARLY use

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POULTRY FOR PROFIT is a very interesting subject, and one that is not yet definitely settled in this country. However, there is one thing certain, if Hens can be made to lay a large number of eggs, and they do not die from sickness, Poultry-keeping would pay, and pay very handsomely. “KONDO” Poultry Food will assist the former, and by keeping the birds healthy greatly reduces the latter.

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about in the same way as rheumatism—by damp and want of exercise. It is not a difficult matter to distinguish cramp from leg-weakness, because in cases of cramp the toes are usually affected, being turned in; and not only so, but frequently a number of the chickens or ducklings will go wrong because the same cause affects more than one. On the other hand, in the case of leg-weakness, as a rule, a single bird here and there goes wrong. It ought not, therefore, to be difficult to distinguish between cramp and leg-weakness. The remedy for cramp is to use a stimulating liniment, and to keep the affected bird in some place where it will be warm and dry until it recovers.

An American writer says leg-weakness is caused by pushing for growth, by feeding too much for growth, thereby increasing the weight of the body beyond the ability of the legs to support it.

If the birds are getting into condition they move slowly, and the limbs slightly shake. In a week's time they can scarcely keep on their legs, and when feeding will sit down so that the body nearly touches the ground. The bird otherwise appears to be healthy; the feathers bright, the eye clear, and the appetite is good. As the days pass he loses his desire for food, and becomes thin. All causes of trouble should be removed. Spice, corn and cornmeal, buckwheat, and rye should not be given to such birds. A grass run, with shade and cool water, will help to cure, while one tenth of a grain of quinine given to each bird with leg-weakness will generally bring it to health again.

Professor Woodroffe Hill says—"Leg-weakness is occasionally constitutional, and in such cases is manifested in young chickens. It has also been observed in the latter when they have been kept on boarded floors for any length of time." Treatment.—A careful attention to the

diet should be observed; the food should be nutritious, without being stimulating or fattening. If the bird treated has been forced, and is heavy in body, it is better to reduce the weight by allowing less food and the administration of an aperient. Salts of iron and phosphate of lime are useful medicinally, also bone-meal. Friction to the legs, using a mild liniment, is sometimes serviceable in promoting circulation, which becomes retarded, and relieving cramp, owing to the want of exercise and continued flexed position of the limbs.

Frank Townend Barton, First-class Honorman, Royal College of Veterinary Surgeons, London, says—"Leg-weariness is essentially a disease of youth, and caused by any condition which interferes with the proper development of the

bird, such as improper food, defective supply of bone-forming materials, or bad surroundings." Treatment.—Careful attention to the food; allow a free supply of lime and green food. The following pills will be found useful—Carbonate of iron, 48 grains; chloride of calcium, 24 grains; phosphorus $\frac{1}{2}$ grain; extract of Indian hemp 3 grains; strychnine, $\frac{1}{4}$ grain. Mix thoroughly and make 48 pills. Give one twice daily after feeding.

Desiccated Eggs.

From a report lately made by Mr J. B. Larke, Trade Commissioner for New Zealand, it appears that a new process has been devised in Melbourne for desiccating eggs. He describes the process as follows:—

"Desiccated eggs are not substitutes for eggs, but newly-laid eggs treated by a process by which only the shell and water contents of the egg are removed, and the whole substance of the egg, yolk, and albumen converted into powder. The eggs first pass through a dark room, being carried on a perforated roller table over a 50-candle-power-light. Any eggs not perfectly fresh, or dirty in any way, are at once detected and put on one side. The sound eggs are carried along and go into a centrifugal separator, revolving at a tremendous rate. Here the eggs are smashed, and the shells separated from the liquid matter which flows into a small tank, and is then pumped up to another tank, where a preservative is added. Below this tank, in a very hot room, with a temperature of 120 to 130 degrees, there are great cylinders or drums, slowly revolving at the rate of one to two and one-half minutes. The liquid egg substance goes from the tank

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into the troughs below these cylinders, and as they revolve, become attached to them. By the time a cylinder has completed its revolution the coating has dried, and further coating adheres. Ultimately this coating comes off in flaky pieces, which are ground into a powder.

This powder will, it is claimed to have been proven, keep for years, and only requires the addition of milk or water, when the powdered eggs will reconstitute and be ready for use for any purpose the same as a newly-laid egg. The powder is rich and attractive-looking and is reported by the Government Analysts of New South Wales and Victoria to contain no chemical preservative. No part of the egg, except the water, has been removed.

Artificial Incubation by Electricity.

Incubation by electricity is the latest innovation in the poultry world. After three years of experimenting, Otto Schulz, an electrician of Strassburg, claims to have perfected a device whereby eggs are hatched with the artificial aid of the fluid which is working such wonders in other fields. In the electric incubator the automatic attachment keeps the temperature within one-tenth of a degree of the normal temperature of incubation. The degree of moisture in the air is also

kept automatically. It is claimed for the electrical device that under ordinary conditions 90 chicks can be counted out of 100 eggs. The amount of electricity consumed is very small. The brooder for raising the chickens after they are hatched is also heated by electricity. The lower part is also warmed by the same means, and built so the chicks can run outside to eat and at the same time find protection and warmth within. This new wonder (says the 'Rural Californian') will doubtless soon be on exhibition at the poultry shows and fairs, and it is needless to guess that great curiosity will be felt by all progressive breeders to examine and test its merits.

Poultry-raising is getting to be of much more importance to the average farmer than it once was, instead of being a nuisance around the farmyard, farmers are beginning to realise that there is a big profit in chickens.

To obtain the best results much depends upon the fowls kept. When non-sitters are alone maintained, then it is much better to kill them off as milk-chickens. The heavier or general purpose varieties are not nearly so good, as they take longer to grow, and the sex cannot be distinguished at so early an age. But they make better birds later on, when the non-sitters have very little in the way of flesh.

Exercise in the open air and sunshine, whenever weather permits, is essential to health and the production on strong-germed eggs—eggs that contain potential vitality, the power to live when properly quickened.

The eggs and poultry produced in the United Kingdom are now of the value of £11,500,000, and great Britain pays £7,967,254 per annum for imported poultry produce. The Irish Department of Agriculture expends close upon £10,000 a year on poultry instruction and "egg stations."

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The Orchard.

"Black Spot" Disease.

By H. TRYON, Entomologist and Vegetable Pathologist.

The disease of the vine known in Australia as Black Spot, and originally identified by the writer with the Anthracose (French) and Schwarze Brenner (German) of European vigneron (vid. Tryon, H.—Insect and Fungus Pests, on the living tissue of either wood, leaf, tendril, flower stalk, or fruit of a minute

parasitic fungus, technically designated *Gloeosporium ampelophagum* (or *Spaceloma ampeiinum*).

The external features as well as the character of the injuries connected with "Black Spot" or "Anthracnose" are too well known to need description here, and the minute fungus organism that occasions it so little patent to observation that further reference to it may be omitted after stating that the spores or seeds that it sheds, and whose presence constitutes the dull reddish grey centres of the 'spots,' are so small that it would require nearly 500 placed on and touching one another to cover a single inch of extent.

The treatment of this malady is in great part a preventative one, and in its details has reference to the following facts relating to the dissemination of the latter:—

1. Its first introduction into a district, or even into a vineyard, is almost always effected through the medium of cuttings which, if they do not exhibit the characteristic markings that it has occasioned, at least may harbor the fungus germs (spores).

2. Its continuance in a vineyard from one season to another is dependent upon the persistence of the fungus parasite in a living condition, on or closely within the surface of the ripened wood.

Its virulence as a disease is dependent upon successive infection of one part after another of the growing grape vine as spring and summer proceed, its onset and progress being favored by humid conditions and a variety of grape vine especially susceptible to its attack. Whence it happens that the disease exists permanently in the coastal districts of the State, whilst in more western localities only occasionally, as a seriously injurious malady; and, under both conditions, certain kinds of grape vine escape its attacks.



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Measures of prevention may accordingly be divided into such as deal with the—

1. Distinction of cuttings;
2. Winter treatment of pruned stocks;
3. Summer treatment of growing plants; and
4. Choice in planting of little susceptible varieties.

1.—TREATMENT OF CUTTINGS.

(a) These, when planting is contemplated, should be procured from a place where black spot disease or Anthracnose has not occurred during the past season, or at least from vines that have not been the object of its attack.

(b) If when received they exhibit the peculiar brand-like marks that are characteristic of the presence of the disease, they should not be used for planting, but rather be burnt forthwith; and

(c) In other cases, they should be disinfected to destroy germs possibly adherent to them. This may be accomplished by steeping them in a carbolic acid bath (2 oz. in 4 gallons—1 kerosene tin full—of water) or in a potassium sulphide one (4 oz. in the same quantity of water) for from 10 to 15 minutes. In the latter case, a wooden vessel—cask, for instance, should be employed.

2.—WINTER TREATMENT OF VINE STOCKS.

This treatment should take place after the vines have been pruned and whilst the buds are quite dormant, no growth as yet being evident. It should consist in the following procedures—

(a) The pruning to be removed and burned, and the resulting ashes restored to the plants

(b) The stems to be rubbed by the hand, enclosed in a coarse glove made of bagging or some such substance so as to remove all loose bark. Some purveyors of gardeners' requisites stock a special glove for this purpose.

(c) The whole of the parts above ground to be painted or mopped with commercial sulphuric acid and water of 10 per cent strength, i.e., with a mixture composed of 1 lb of acid in 10 lb (1 gallon) of water. This dressing must be made and conveyed in a wooden, earthenware or enamelled vessel, since metal receptacles would be corroded by it unless

coated with anti-acid paint. With regard to adjusting the proportion of acid required for every gallon of water it has been pointed out that as a reputed quart wine or whisky bottle holds 1-6th gallon, i.e., 3 lb—of acid, a third of its contents will be the measure of acid required for every gallon of water.

In mixing the acid and water, the former must be gradually added to the water, and not the water to it, otherwise spurring with consequent injury to the person may result.

The application may be made with rather a large sized brush, composed of bristles of horse hair, or with a rag mop, the handle in each case being fairly long. Inasmuch as this acid application is destructive to clothing if shed upon it, and is also rough on the skin, care should be taken to avoid splashing, and the operator should be clad in old garments whose injury is not a consideration.

In France a special knapsack spray pump is employed for this, and an equally corrosive winter dressing.

Going over in the manner described one or two vines of average dimensions with simple water will afford an insight into the quantity of sulphuric acid required for treating an entire vineyard or any definite portion thereof.

When first making known to Australian vignerons twenty years since the nature, cause, and mode of treatment of Grape Vine Black Spot Disease, the writer recommended the use of a strong acid sulphate of iron solution in lieu of sulphuric acid and water for this winter application. This is still the most favored one in France, and is composed of sulphate of iron, 50 parts; water, 100 parts and concentrated sulphuric acid, 1 part. Unless, however the climate be a moist one, some danger to the vine may result from its application.

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SUMMER TREATMENT.

Notwithstanding the procedure above has been carried out, some living spores of the black spot fungus may survive in a vineyard to cause the infection of the early growth, or this may be effected through access to it of wind-borne spores derived from untreated vines elsewhere. Accordingly, the winter treatment should be followed up by a spring and summer one. This consists in spraying the vines with Bordeaux mixture (copper sulphate or bluestone 6lb, lime 8lb, water 40 gallons) or soda Bordeaux mixture (in which soda in equal amount is substituted for lime). The preparation of Bordeaux mixture has been so often described that it not be repeated here but directions for its manufacture can be furnished on application. It may, however, be pointed out that, as soon as the first signs of black spot are evinced by the appearance of dark corroded markings on the young growth, its application should be commenced. Moreover, since this fungicide only protects the parts to which it adheres, the application should be renewed every two or three weeks as additional growth is produced or removal through

rain has been effected. It requires to be administered by means of a spray pump with astonishing nozzle attached to the delivery tube, in the form of a fine mist. A little soapy water added to the mixture will promote both the spreading and adherence of the tiny droplets. Freshly prepared Bordeaux mixture always produces better results than such as has been held over from an earlier application and is accordingly "stale."

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Inasmuch as has been remarked, the summer treatment described involves the use of a spray pump, and this may not always be available. A dry application of sulphur or of sulphur and lime may be substituted for it, but with less efficaciousness. This is applied in the ordinary way for sulphuring grape vines for Oidium or Powdery Mildew. The sulphur should be finely ground (flower sulphur), or, preferably of the kind known as flowers of sulphur, and in either case should be acid to the taste. The latter form is the more costly, but since it is the bulkier, weight for weight, its use involves little more monetary outlay than does that of ground sulphur. The lime should be well air-slaked to prevent any damage to the coming crop through its caustic action, although in the case of flowers and very small berries, injury from it is scarcely to be anticipated. For the first application sulphur alone may be used, and to this, for subsequent ones, the lime may be added till it constitutes three-fifths or more of the bulk of the mixture.

Reference has been made to a special susceptibility to black spot disease mani-

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festated by particular vines. It has, however, been found that where Anthracnose is constantly prevalent, these vines can be grown successfully, and made to produce good sound crops by careful resort to the winter and summer treatments alluded to. This is a consideration of some importance, since it also happens that the more susceptible varieties are those that generally produce the most esteemed and most valuable fruit. I have ever felt proud of the day when, through my investigations, both the nature of and remedy for this serious vine disease were first made known to the Australian vigneron in 1889.

E.  R.

Notice to Fruit and Plant Dealers.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.

2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.

3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.

4. No plants other than those growing in pots having soil attached to their roots will be admitted.

5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.

6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.

7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.

8. No plants or portions thereof will be admitted from any State or country where phylloxera exists unless accompanied by a declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in the exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phylloxera exists or has existed in the plantation from which the plants originated.

9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.

10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

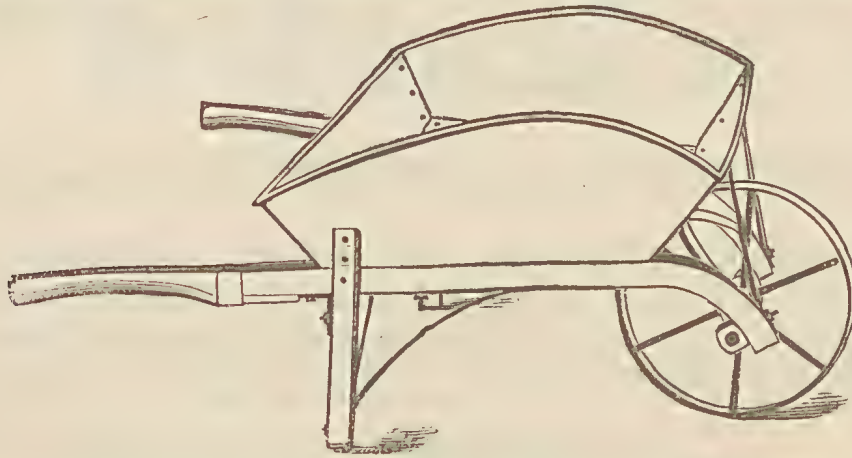
Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace

L. O'LOUGHLIN,
Minister of Agriculture.

The largest glass-house solely devoted to the growing of roses will be completed next season. It will be 1,000 feet in length. It is being built at the Waban Conservatories, Wellesley, Massachusetts, U.S.A.

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Orchardists in the great apple-producing countries of England, viz., Devonshire, Somersetshire, and Herefordshire anticipate the most abundant crops of apples they have ever known this autumn and that wholesome and refreshing beverage, cider, so largely consumed in parts of the old country, will be plentiful, cheap, and of high quality.

One of the chief features at the recent show of the Royal Horticultural Society, was a group of columnar fuchsias. There are eight of these splendid specimens, about nine feet in height, and were beautifully furnished with blossoms from pot to summit. They were awarded a gold medal.

Geraniums and Pelargoniums are by many persons considered to be synonymous terms; but they are not so. They are distinguished by two characters. In the true Geraniums the flower is regular, while in the Pelargoniums it is irregular, the two upper petals being larger or smaller and differently marked from the other three. In the Pelargoniums, again, the back sepal is furnished with a hollow spur, which is adnate with the stem, while this is wanting in the Geraniums. If the flower stalk be cut through, just behind the flower, the hollow will be seen in the Pelargoniums, while the stalk of the Geranium will be found to be

solid. The foliage and growth is different, and they belong to different hemispheres.

Rapid milking is an advantage if it is done without hurting or irritating the cow and she is milked clean.

Cows should be able to drink whenever they wish, as a constant supply of water increases the milk yield.

As the pigs learn to eat their feed may be increased. Skim milk should be used liberally, using rather large quantities at first.

The draught stallion should have good size and he must have energy and fine action. The big, sluggish, draught horse is not wanted in the market, and should not be bred to reproduce that type.

Where possible all the implements should be kept under cover when not in actual use.

A pullet should never be entrusted with a sitting of eggs until she has left her nest once or twice and returned to it without too long an absence.

If you want the flow of milk to keep up always milk clean.

Daily feed for a 1,000-pound cow—Forty pounds of silage, seven pounds clover hay, and eight pounds of grain.

GEO. TAIT,

Veterinary Surgeon,

Horse Mouth Specialist,

28 years Victorian Practice.

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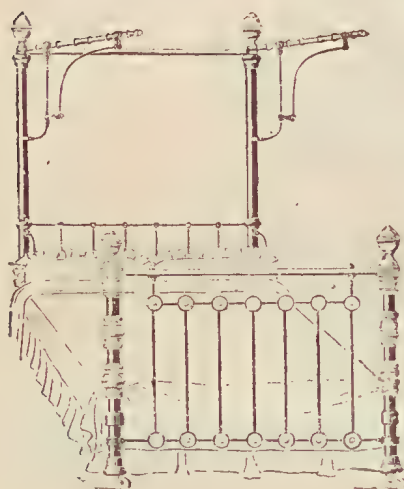
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The sterling value of the goods we forward to country clients.

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And last, but not least, that we stock only the Best Makers' Goods.

CASH OR TERMS.

Too heavy salting destroys the flavor of good butter.

It is a matter of fairly common observation that size of bone-dust is difficult to obtain on overstocked or stale pastures.

Naturally, the best situations for lucerne growing without irrigation are low-lying lands with a depth of soil.

Three things are important in poultry-raising, and these are coarse sand or grit, fresh water, and a good dusting-place. Are you giving your fowls these things?

If you have a few heads of cabbage, hang them up by a string just high enough so that the fowls can jump up and pick them. This will give them exercise. Livers and lights can be hung up in the same way.

When first stocking rape with sheep care should be taken that they have been fairly well filled on some other pasture, so that the risk of hoven is decreased. After the first day the risk is comparatively slight, and the stock may be allowed to remain on the crop.

A poor milker, whether cow, man, or maid, is an abomination in the dairy.

The dairy cow should be a good feeder and she should have good feed.

Fodder crops produced in lime-rich soils contain better nourishing qualities than crops grown in lime-poor soils.

Soils that, in consequence of sourness are soon changed by the action of lime into a healthy condition.

The whole of the cream should be well stirred every time fresh cream is added.

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Absolutely the best in the States. Customers have a choice of over 2,000 patterns.

New Goods now open for Spring and Summer wear.

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NOTE THE ADDRESS, and profit by ordering your next suit from us. We post free to country customers patterns and self-measurement forms.

Please mention this paper.

When on free range the chickens pick up insects and worms. These are most abundant during the spring and summer and it is at this time that the chickens thrive. When they cannot get these abundantly animal feed must be furnished in some other form.

By Appointment
to
His Excellency



The Earl of
Kintore,
P.C., K.C.M.G.

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GOLD CHAIN and
JEWELLERY MANUFACTURERS,

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Country Orders promptly attended to.

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Thus sings Tennyson's "Northern Farmer," hearing the refrain in the hoof-beats of his horse.

YOU CANNOT DO BETTER than invest your surplus funds in land. Australia is on the up-grade, and the man who misses his chances now will regret it in a few years time.

HERE IS A BLOCK WORTH BUYING—

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ANOTHER—

CAMBELLTOWN DISTRICT—30 acres, 5-roomed house, £1,100.

COUNTRY LANDS, including 14,926 acres Cooke's Plains, 6,621 acres Coonalpyn, 1,853 acres Pinnaroo, 5,000 acres Yorke's Peninsula (in lots), 110 acres, 4 miles from City, with Orangery, etc.

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Nowhere on earth do neat, cleanly, and orderly ideas of doing work pay better than on a dairy farm. The men who follow clean ideas and methods make the most out of their labors.

The milking shorthorn is not to be cast into outer darkness just because of the prejudice of a few wise men

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For Good Work and Up-to-date Photographs, which include

POST CARDS from 5s per doz.

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NOTE ADDRESS—

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Robert Hill,

Chaff and Grain Merchant

64 CURRIE STREET, Adelaide.

Bran, Pollard, Oats, Wheat

Chick Meal, and all kinds of

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AT LOWEST MARKET RATES.

Telephone 1250.

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Send us along a trial order.

Vegetable pathologists, in selecting wheat varieties, breed the new stock not only from one plant but from one ear of one plant. The best from the best plant is chosen, and after the seed from it has been planted selection is continued through subsequent generations.

The potato was originally called “batata” by the Indians, but usage produced the present name.

Trials have been made to test the influence of age, and it would appear that young cows yield richer milk than old animals, and that cows of from five to six years produce an average quality.

It is the ill-conditioned members of the flock or herd which cause the greatest loss and trouble in the management.

Muirden College,

CURRIE STREET.

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W. MUIRDEN, PRINCIPAL.

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SPECIAL EVENING CLASSES are being formed, and will be conducted personally by the Principal. Join without delay.

Send for particulars to the College, and lose no time in joining one or other of the Classes if you would ensure success.

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The Cheapest, Strongest, and Best.

The Most Up-to-date and Serviceable.

Spare Parts always in Store.

If any of your Friends are using METTERS' MILLS, they will advise you to have no other make.

A Guarantee given with every Mill.

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Every Stove Guaranteed to give Satisfaction.

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September Number of

1908

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry),

CONTAINS—

The Vegetable Garden—
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Flower Garden—
The Dahlia
Plant Stands
New Use and Culture of Evergreens

The Farm—
Cultivation of Lucerne
Destruction of Charlock

The Dairy—
Industry Progressing
Suburban Dairying
Hard Quarters

The Orchard—
The Value of Walnuts
Fruit Growing
The Nursery Business

EDITORIAL.

The Poultry Yard—
Crop Troubles
Egg Export Trade
An Improved Poultry Food
The Young Folks—
Quarterly "Meating"
The Perseverance of a Mouse
ANSWERS TO CORRESPONDENTS.
&c, &c, &c.

EDITORIAL.

In the days of the Coliseum, of which we read in history, the appetite of of people in the matter of public exhibitions, would not be satisfied except by cruel contests in the arena between man and beast—bloodshed invariably resulting. With the advance of civilisation, and the growth of a better feeling of humanity, the Coliseum was passed out—never to be tolerated again. Humanity had changed. The populace are now content, and happy in amusing and interesting themselves in other more civilised and profitable exhibitions, such, for instance, as agricultural shows. The value of agricultural shows to a community, we include the whole of the sections, cannot be over estimated. That is, of course if they reach the high standard it is intended they should. In the breed of stock the owner or occupier of land vies with his neighbor for the purpose of excelling him at the show exhibition, winning the prize, and carrying off the honors of the competition. Thus a state of excellence is reached, and a good breed of animals is maintained all along the line, with a beneficial effect to the country. The same applies to the other exhibits, and we may say that, treating the subject from a comprehensive point of view, the whole of the products of the soil are thereby improved, in a measure, if we looked back through the haze of a few years, comparatively speaking, would seem beyond realisation. We cannot dwell with too much importance on the advantages of these shows, nor urge too strongly on the public the great desirability of extending to them the hearty and universal support that they so meritoriously deserve. The show par excellence of the year in South Australia is the Royal Live Stock Show, which is to be held at the Exhibition

Grounds, Adelaide, for four consecutive days, commencing on Wednesday 9th inst. This popular annual show merits the support of all classes of the community. The forthcoming exhibition promises to eclipse any of its predecessors, and if the weather proves fine, which is a very great desideratum on an occasion of this kind, there should be a record attendance of the public from all parts of the State, as well as a large contingent from other States. The Society, of which the people should be justly proud, has increased the prize list to £2,500, and had several hundreds of pounds expended on improving the grounds during the past year. Everything, therefore augurs well for the show, and we hope its success will be great and unprecedented.

The recent rainfall has done an exceedingly large amount of good throughout the State, and if favored now with a few weeks fine weather, the agricultural prospects for this season promise to be phenomenal. So mote it be!

The farmers when in the city attending the show, will, doubtless, avail themselves of the opportunity thus afforded of procuring seeds to be sown this month. Included is maize—horse tooth and ninety day, or Cobbett's corn, millets of different varieties, lucerne, mangles, turnips, and Sinclair's champion carrot, which reaches a prodigious growth, more particularly in New Zealand.

An improvement in the gardens since the beginning of last month is very noticeable. Indeed it is hard to realise that such a pleasing transformation scene has taken place in so short a space of time. During the month numerous flowers may be expected to bloom with rare brilliance.

In the flower gardens, however, the weeds are actively asserting themselves. They should be removed at once by some of the weed destroyers that may be obtained from local seedsmen.

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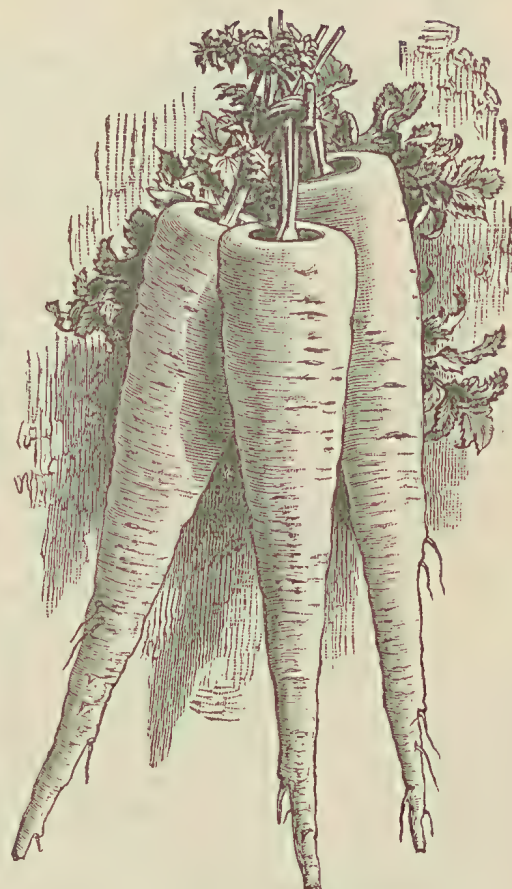
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DANIELS' DEFIANCE CABBAGE.



HOLLOW CROWN PARSNIP.

The Vegetable Garden.

Operations for the Month.

In many parts of the State the ground begins to get sufficiently warm for vegetables of a rather tender nature, and consequently it would be advisable to sow seeds of as many varieties of useful vegetables as would be likely to thrive. It is a mistake to depend on one or two kinds, such as cabbages and pumpkins, which are apparently the most generally grown in the country, when vegetables are grown at all.

Asparagus—It may not be too late in cold districts to plant this useful vegetable. If the plants have not begun to shoot they may be safely moved from the seed-bed to their permanent bed.

Beans, Kidney or French—Sow a few rows from time to time.

Bean, Lima—This should be treated in the same manner as the kidney bean. The seeds, either in a green or dried state, are used, and not the pods. There

is a tall-growing runner variety, and also a dwarf; the first-named bears the best beans. Sow the seeds wider apart than the French or kidney bean.

Beet, Red—Sow a little seed in drills 1 foot or 18 inches apart, not deeper than 1 inch.

Beet, Silver—Manure the ground well for this vegetable, in order to induce the growth of good succulent leaves, for the leaves only are used, and not the root, like the red beet. A single row in a few feet in length will be sufficient if the plants are well cultivated and sometimes supplied with a good soaking of liquid manure, made from the droppings of animals.

Cabbage—Sow a little seed in a seed-bed. Plant out some young cabbages, if you have any large enough to transplant, to a well-dug, well-drained, and well-manured bed.

Cauliflower will succeed best at this time of the year in the coolest districts of the State. Follow the directions given

for the cabbage. Sow a few plants and also a little seed in the seed-bed.

Carrot—Sow a few rows of the short as well as medium and long varieties.

Celery—Sow some seed in a small seed-box, or box. The soil should be made very fine.

Cucumber—In the warm districts seed may be sown towards the end of the month. The ground should be thoroughly well dug up and manured, and well drained.

Leek—Sow some seed and plant out.

Lettuce—Sow a little seed, and plant out when the young lettuces are large enough.

Melons, water—Sow seed also as above, but the plants must be allowed considerably more space.

Okra or Gumbo—A vegetable bearing a succulent, gummy, or mucilaginous pod, which is used for thickening soups. Suitable for warm climates. Sow seed in a box or seed-bed, and when the plants are large enough to move shift them to a well-manured bed. Let the



SANDRINGHAM CELERY.

plants stand about 2 feet apart each way.

Onions—Sow a few rows.

Parsnips—Sow a few rows in just the same way as was advised for carrots. They are very deep-rooting plants, and the soil should be dug to a considerable depth.

Peas (capsicum)—A plant or two is all that will be needed in a small home garden. The seed may be sown in a box, and the seedlings transplanted when they are a few inches in height. They come to the greatest perfection in the warm climates.

Potato—A few rows to be planted. Some of the best varieties are Brownell's Beauty, Early Rose, and Kidney.

Rhubarb—The present is a good time to sow seed of this vegetable. Roots are generally obtained to plant out, and time is thus saved, but in many localities it is difficult to obtain roots when they are required. Sow in drills in a seed-bed, and when the seedlings are large enough to handle transplant to a well-dug and well-manured bed, where they may remain until large enough to plant in their permanent places. There is no necessity to sow much seed, as a dozen plants will suffice for an ordinary family.

Tomato—Seed may be sown in the open ground in all the warm districts. The best plan is to sow the seed in a box or seed-box and transplant the young tomatoes when they are large enough to move.

Turnips—Sow a few rows in drills about 18 inches apart on well-manured ground. It is customary to sow turnips broadcast in vegetable gardens, but this is not so for they can be better attended

to, weeded, and thinned if sown in drills. Do not cover the seed with more than half an inch of fine soil.

Vegetable-marrow and Squashes—Sow seeds in the warm parts of the State. The sowing will be the same as that recommended for cucumbers.



BEAUTY OF HEBRON POTATO.

Jubilee Grounds and Buildings.

Royal Live Stock Show.

September 9, 10, 11, 12, 1908

On View—

Horses, Cattle, Sheep and Pigs.

Horses in Action and High Jumping.

Flowers, Fruit and Vegetables.

Poultry, Dogs, Pigeons and Cats.

Concerts—Thursday and Friday Nights.

Admission, 1/-

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A prompt and regular settlement is commendable from every point of view. Even the weather settles every few days.

There are many men, who, no matter how tired they are, seem to take a pleasure in going away down the road to meet trouble.

The wife of a horse-owner, in explaining to a visitor why her husband did not sell his horse as he intended, said that after they entered the animal in the sale and read what was written about him in the catalogue, they realised for the first time what a wonderfully perfect horse he was, and decided to keep him until he died.

E.  R.

Notice to Fruit and Plant Dealers.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908 on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.

2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.

3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.

4. No plants other than those growing in pots having soil attached to their roots will be admitted.

5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.

6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.

7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.

8. No plants or portions thereof will be admitted from any State or country where phylloxera exists unless accompanied by a declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in the exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phylloxera exists or has existed in the plantation from which the plants originated.

9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.

10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace

L. O'LOUGHLIN,

Minister of Agriculture.

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ADELAIDE



FUCHSIA "PHENOMENAL."

The Flower Garden.

Notes for the Month.

During the month of September plants of all kinds made rapid growth, and the garden becomes beautiful with fresh young foliage and numerous flowers. Those who have been watching with interest for their new plants to flower will soon be gratified, for during this and the following month (October) all the spring

flowers will have expanded. The anemones, ranunculus, daffodils, forget me-nots, pansies, hyacinths, violets, some early roses and many other plants should be in bloom. One of the most welcome of little flowers is the sweet violet. Everyone likes the violet, and very properly so, if only for its delicious fragrance; but the best kinds are not always grown, for there are many va-

rities of more or less merit, and amongst the best are the doubles, which succeed well in cool districts. It is a great mistake to allow violets to grow for years in the same spot without taking them up sometimes, dividing and replanting after the ground has been well dug and manured. In some cases it would be advisable to throw away all the old plants and obtain healthy new ones.

Comparatively tender plants, such as bouvardias, may be planted, and they will soon push ahead and make good plants. Bouvardias bear very pretty flowers indeed, and are easy to grow. If the soil should be very dry they will need watering or they will probably die away. There are many varieties, and some of the best are brilliant, bearing flowers of a bright red color; Candissima, white, one of the most useful of bouvardias; Dazzler, scarlet; Elegans, brilliant scarlet; Hogarthii flore pleno, rosy salmon, double-flowered; Humboldtii corymbiflora, large white sweet-scented flower; Laura, pink, Longiflora Glamea, rose; Maiden's Blush, a very useful one, flowers pale pink; President Garfield, pale peach, double-flowered; Priory Beauty, rose-colored; Triomphe de Nancy, orange salmon, double-flowered; Umbellata carnea, blush; Vreelandi, white; Jacquini, scarlet, a most useful but old variety; President Cleveland, deep scarlet, one of the best of the bouvardias.

You should prune back rather hard any plant of bouvardias there may be growing in the garden.

At this time plant out pelargoniums or other evergreen plants or seedlings which may be in stock, but be sure to water them well and shade from the sun until they become well established.

Sow seeds of tender annuals and perennials either in the garden or in boxes or kerosene tins, or anything that will contain soil so long as it has an opening in the bottom to allow of surplus waters draining away. Anything planted out this month will need a good deal of care and attention, if the weather is hot and dry, as it often is in September.

This is what an English gardener says—He who makes most money out of his strawberries gathers as soon as dawn breaks, and the man who washes off the

Roses ; All the leading varieties, half-standards, 1s. each

Fruit Trees ; Orange, Lemon, Peach, Apple, Pear, Plum, etc

HARDY SHRUBS, Trees, Climbers, etc.

BULBS, Hyacinth, Daffodil, Anemone, Tuberose, Gladiolus.

SEEDS ; Vegetable and Flower. Agricultural, Horticultural Sundries in great variety.

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Telephone 350

No Increase in Price.

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DIAMOND TOBACCO,

Dark Twist, 3s. 1b. Aromatic, 3s. 9d. 1b.

Obtainable at all Stores, or of the Sole Agents—

W. CORNELL & Co., 55 Rundle Street, Adelaide.

white frost from his early potatoes is also up early in the morning, also the one who effectively dust sprays. The cuckoo sings its clearest when hunting for caterpillars and birds' eggs early in the morning. The grower for market who does not get up in the morning loses all the greatest pleasures of the open-air country life, as well as his money.

A method of destroying ants in a flower border or shubbery, which is stated to be effective is as follows:—As it is usually undesirable to remove the plant or plants where the ants' nest is, the troublesome insects may be trapped by taking a good-sized garden pot, stop up the whole at the bottom, half fill it with leaves, and place its bottom upwards on the ground close to the plant; then water the plant copiously every day so as to keep the soil thoroughly saturated. The ants will soon begin to move their nest to the shelter of the pot, which in a fortnight's time may be taken carefully away, when it will be found to contain the nest. Ants do not feed on the roots of plants as some persons imagine, but they do injury by

preventing the roots from being in close contact with the soil. The insects are generally found to be after the aphides which attack the roots.

The Americans are most lavish in their expenditure upon floral decorations. One instance may be given here. A magnificent dinner-party was recently given at the Hotel Pfister, to Milwaukee friends, by Mr J. B. Regan, proprietor of the Hotel Knickerbocker, New York. The table was spread beneath an immense umbrella of American Beauty roses and daffodils, and had for its centre a miniature lake 20ft long, and 3ft wide, spanned by two rustic bridges, and lined along its banks with moss and water-lilies. Ducklings and goslings swam about in the water, and therein a fountain played. Strings of smilax were festooned from the corners of the tables to the sides of the room, which were banked with palms and ferns, among which glowed myriad electric lights.

Blanchon, the naturalist, says that most floral perfumes are in reality

citants, which stimulate and then provoke a reaction—that is, a weakness equal to the quantity of power employed at the moment of excitation. Perfumes, in fact, act as alcoholic acts. Their chief virtue is their antiseptic quality. The bacilli of typhoid has been killed in from 12 to 80 minutes by different essence. Scent-giving flowers are not as is often stated bad in sick rooms. But they should be chosen in view of their effects on the nervous system, or of their antiseptic qualities. Growing flowers are the best. Flowers with delicate perfumes act favorably on the nervous system.

A new fruit has recently been exhibited in London. It was obtained by crossing the native blackberry with the Logan berry. The fruits are deep black in colour, from 1in. to 1½in. in length, and of splendid flavour. It has been named the Low Junior Berry. It has received an award of merit, and it is thought this novelty will have a great future.



Cactus Dahlia.



Double Gloria Dahlia.

Dahlias.

The Dahlia.

(From the American "Florists' Exchange.")

[Planting operations for Australia begin during this month.—Ed.]

This interesting and useful plant for the decoration of our gardens in middle summer and fall was first discovered in its wild state in Mexico, and introduced into Europe about 1789, and although cultivated in several different parts of the country by amateurs and gardeners, it failed to become well-established before 1814, when the first semi-double and double varieties were obtained, and a new impetus given to the cultivation of the plant.

The changes and improvements obtained and the popular attention given to the culture of the Dahlia are really wonderful; principally are these advances noticeable in the case of the types of new Cactus and decorative Dahlias. But, however popular these new types may become, I hope they will not supplant our old ball-shaped varieties, with their beautiful colors and symmetrical forms.

What other plants can give us such a diversity of color of every shade and tint? Its ease of cultivation, and its adaptability to several conditions, make it, indeed, a most useful subject, either for the purposes of cut flowers, bedding, bordering, mixing among shrubs, potted plants with the dwarfier varieties, or as a single specimen on the lawn.

CLASSIFICATION.

The varieties of Dahlia have been divided into many different sections and

classes. The following will be most generally found, mentioned in catalogues:—

Show: All varieties producing large, compact, well-formed flowers, usually of a solid color, but sometimes shaded with darker or lighter tints.

Fancy: All variegated varieties.

Cactus: The flowers are perfectly double, with long, narrow petals, and the plants are very profuse bloomers. The *Juarezii*, an intense scarlet, was the first of this type to be introduced in 1872, and consequently is the parent of this extensive class.

Decorative: An intermediate form of the above, and sometimes classed with it. The plants are of strong growth, and produce large flowers with flat and broader petals. One of the best for general decoration.

Pompon: One of the most useful for bedding; also for flowering in pots; of dwarf and compact growth.

Single: Very useful for bouquets; these are among the easiest to grow.

PROPAGATION

Propagation is effected by seed, cuttings, divisions of the roots and sometimes grafting. The seeds are sown in flats, in the greenhouse. When the seedlings are large enough to handle, transplant them into 2½ inch pots, and set outside after danger from frost is past. If well watered until thoroughly established the plants will flower the first season.

In the case of cuttings, the old roots are placed in a bench, in a greenhouse, the roots being only covered (not the crown), with about 2 in. of soil. Syringe when necessary to keep them partly moist. As soon as the young shoots are about 3 in. in length, tear off, or cut with a knife just below the joint, and place

the severed portion in a cutting bench. With proper treatment they will root in about ten or twenty days, when they can be transferred into 3 in. pots, and shaded for a few days. As soon as the roots have taken a good hold, remove the plants to a cold frame. Keep as cold as possible to retard their growth without impairing their vitality, in order to get strong and thrifty plants.

When one has enough cuttings of a variety, divide the old roots to as many eyes as there are on the crown; pot to size required and again place in a cold frame.

If before planting time the plants are growing too fast to suit your purposes, retard them, by removing them to the north side of a building.

Division of the old roots is the most easy and satisfactory way for the amateur. The old roots placed in a red hot bed, or greenhouse, and kept a little moist, soon start to grow. As soon as they show their growth divide to as many eyes as there are on the crown, pot and place in a cold frame, or plant out in their permanent quarters after danger from frost is past. The roots can also be taken from their winter quarters and planted out-of-doors; but always divide the old clump. They will not make such large plants, but the flower will be better and the plants will bloom more profusely.

I believe in growing all Dahlias to single stems; therefore, all the shoots but one should be removed as soon as they appear.

LOCATION.

While the Dahlia is a very easy plant to grow, it will respond readily to some special attention. The most suitable location for the plants is where they will get plenty of sunlight, air, and moisture, as they need those elements to grow to perfection.

Before planting time same decomposed manure is forked in, and well mixed with the soil; but if the manure is not well decomposed use instead some kind of fertiliser rich in ammonia, and if in previous years the soil has been well supplied with plant food, I would not use any kind of manure at all, as a too rich soil will induce a soft growth and poor flowers.

PLANTING.

So much has been said of late about the best time to plant Dahlias that it is impossible to give any special rule to follow on this important subject that will suit everyone. My advice to those desiring no flowers, or only a few partly formed and insignificant ones, and extremely large plants, is to plant early. But if you are a lover of this plant, and wish to enjoy it in its full glory, plant late, and you will be rewarded with compact plants covered with beautifully shaped flowers.

At Malvern, our first plants were set on June 9, with our batch of cuttings and also divided plants and we kept on

planting every week until July 11, when our last batch of cutting, 25 plants, and newly received varieties were set out. At this writing the only difference seen is that our planted ones are shorter, but have stronger stems and larger flowers.

The plants were set out in the kitchen garden in rows 4ft apart and 3ft between the plants. A strong plate was placed to each plant at once, and a good watering given to firm the soil around the roots.

In a sheltered situation, if the plants are grown to a single stem, and the main shoot pinched to a certain height, no staking would be necessary; but if the location is exposed to strong winds, it is better to stake the plants.

We set the roots deep enough in the ground so that the crown will be about 3 in. below the surface, and draw a little of the soil around the plants at each hoeing. This I like better than covering around the plants with litter; but if the soil should be very light and does not retain moisture properly, mulching is very beneficial.

In planting Dahlias in beds the approximate height of each variety will have to be ascertained before planting; placing the tallest growers in the centre, and finishing with the dwarfer varieties.

Deep and frequent stirring of the soil during early growth is indispensable to success; but as soon as blooming commences, simply stir the soil with a rake as too deep at this period is apt to destroy the young feeding roots near the surface, that are needed for the development of the flowers.

If the soil has been prepared before planting, as advised, no fertiliser should be given until the plants commence to bloom; then scatter a little bonemeal round the plants and work it into the soil. The rains will work the fertiliser, down to the roots, and this will induce large and well formed flowers.

The past season has been favorable for the growth of Dahlias, as we have had an unusually cool summer and plenty of rain; in fact, too much, as the plants have made a soft growth, and most of the early buds were blasted before developing, showing that too much water is injurious, to a certain extent. The roots being planted deep, as before stated, find plenty of water in the ground and do not require any watering; but if the weather should be dry at blooming time give a good watering, not a mere sprinkling, and repeat it in two weeks if the drought lasts.

As soon as the frosts have killed the foliage, like the roots, shake off the adhering soil, allow the roots to dry in the air for a few hours, and store in a frost-proof cellar, cover the roots with

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dry sand; or where there are only a few roots, store them in boxes or barrels, and cover with dry earth, or sand.

The only disease that affects the Dahlia to any extent is mildew, which is mostly caused by climatic conditions. Keep the plants growing for frequent cultivation, and mildew will be unknown.

A very troublesome insect with us this year has been the small cucumber beetle, which feeds on the petals of the flowers. The only remedy for the pest that I know of is picking by hand.

As to the best varieties to grow the grower must choose according to his fancy. There are hundreds of varieties to select from, and new ones are still coming every year, so that it would be futile to name any special sorts.

Visit the Dahlia exhibitions in September, or better still, visit the establishment of some Dahlia grower, and select the varieties that you think will suit your taste and purposes.



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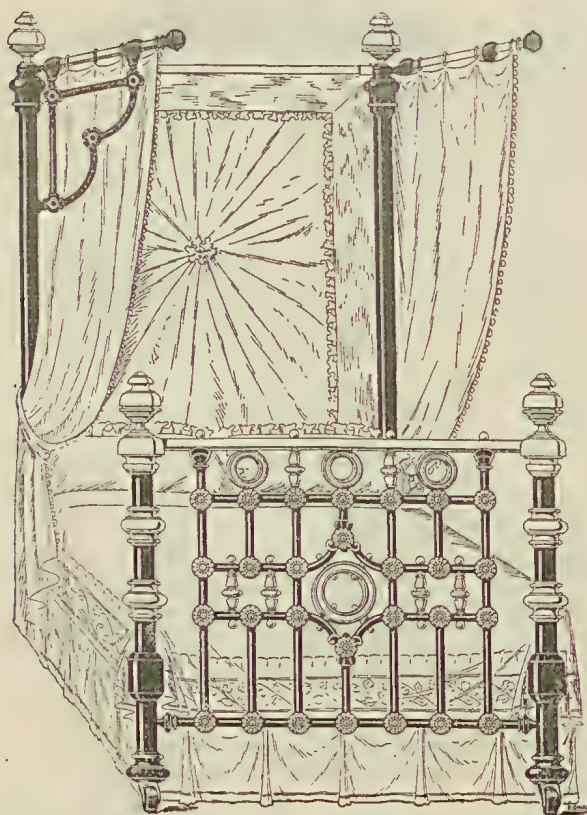
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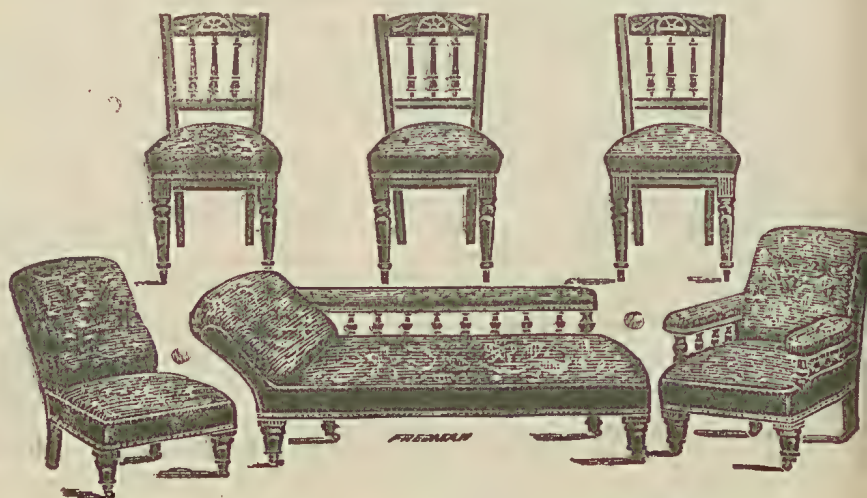
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Industry Progressing.

A large area of South Australia is eminently adapted to successful dairying, and while the summer is dry, rendering it necessary to make provision for succulent feed for several months, the temperate nature of the climate enables the dairyman to keep his cows in the open right through the year, the natural shelter in timber country being sufficient, except on a limited number of days of extreme wet and cold. Stall feeding for weeks at a time is unknown; the necessary shelter-sheds can be cheaply provided, while the labor of feeding is, under these conditions, reduced to a minimum. In the northern districts conditions are not so favorable as in the south, but even here dairying can be profitably carried on; the fact that land is much cheaper com-

pensates for the shorter period during which the natural herbage supplies practically all the feed required. In some of the driest of our farming areas dairying has largely replaced wheat growing, and, although the yield per cow is naturally not so high as under more favorable conditions, still low rents of natural pastures enable the farmer to make a fair profit.

This industry, though of great magnitude, has not made progress as was anticipated. This is probably due to the fact that wheat growing and sheep-breeding combined offer great attractions to the farmer. These industries require a great deal less labor than dairying, besides which the work is not continuous. So long as highly profitable returns can be obtained from the production of cereals, and the breeding of lambs, the dairying industry is hardly likely to make the progress that would otherwise be possible, though there has of late years been steady and continued development in the industry, especially in the northern districts. In the south and south-east, where conditions are more suitable, there has, on the other hand, been very little extension.

Large quantities of butter are exported to Broken Hill and Western Australia throughout the year; in spring months shipments are made to Great Britain. During the past four years there has been a marked increase in oversea export of

butter, as the following figures will show: 1903-4, 229 tons; 1904-5, 352 tons; 1905-6, 590 tons; 1906-7, 878 tons.

Official figures show that during the last four years the number of milch cattle has increased 17 per cent. The quantity of butter produced in 1906 (excluding butter made for home use in private families) reached 8,873,630 lbs, compared with 8,226,805 lbs the previous year. Cheese is not made on such an extensive scale proportionately to butter.

Practically all the cheese is manufactured on the Cheddar system, and an article of high quality is produced in the best factories.

Special facilities are afforded by the railways for the conveyance of perishable goods, and cream is forwarded by the dairymen to the city factories from 300 miles distant. Payment is usually made on the butter-fat percentages; and in order to afford suppliers an opportunity of checking the returns received from private factories the Government established a butter factory in connection with the export freezing works at Port Adelaide. At this factory every can of cream is sampled, and the quantity of butter it will produce is ascertained by the usual methods and the supplier paid accordingly.

A considerable number of butter factories have been erected in South Australia, and the butter produced is generally of high quality. The butter made from the milk of cows grazing on the natural herbage of the country is of

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splendid quality and color. Hand separators are in general use, the cream being sent to the factories for treatment. The percentage of butter-fat in the milk of cows grazing on the natural pastures is unusually high.

Suburban Dairying.

A correspondent writes from Victoria as follows:—

Within a radius of ten miles of Melbourne are situated some of the best-equipped dairy farms in the State. The metropolis depends upon a far wider area for its daily milk supply, but close into many of the suburbs many dairymen, who are their own distributors and are independent of big distributing companies, carry on the dairy industry in an advanced and systematic manner that would be considered by some of the country suppliers extravagant and unprofitable. The dairyman who is able to sell direct to the consumers, and is able to dispose of the assistance of the middleman, undoubtedly makes higher profits on his milk than the supplier to the butter factory, and is, perhaps, able to spend more money on the construction of clean and airy milking-sheds, and to equip the

buildings with many improvements which are not directly responsible for any substantial profit. But at the same time he labors under other disadvantages, and it is doubtful, after making due allowance for the extra price obtained for his milk, whether the selling profits more than counterbalance the extra expenses involved in the working of a smaller farm. In the principal dairying districts of the State a striking advancement in dairy methods now is the improvement being made to the cowsheds and dairy buildings but the standard does not appear to have reached the level attained by the suburban distributors.

LUCERNE RECOMMENDED.

Abundance of green feed is grown in the majority of suburban dairies, in addition to that conserved as silage. The area under crop, in proportion to the number of cows milked, would strike many as unnecessarily large. Even those who have fairly extensive grass runs take the precaution of a large acreage, for the grass is only depended upon to keep up the milk supply for a few months. In some instances chaff has to be bought, and where it is fed it is mixed with green stuff that has previously been chaffed. The experience of many dairymen on the use of lucerne hay is interesting, and

their testimony should help to break down the prejudice against lucerne, or, if such does not exist, the effect of such opinion should be to encourage the cultivation of that fodder crop in Victoria. Twelve months ago, when describing a large Sydney dairy, where on the average more than 100 cows are milked, and where tests of different fodders have been systematically carried out and carefully recorded, I gave the experience of Mr McKenzie, of Bondi. The conclusions he came to, as do the analyses showing the nutritive values of the various hays demonstrated the superiority of lucerne over either wheat and oats for milking purposes. Several Melbourne dairymen, forced by the scarcity of high prices charged for oats hay, were obliged to purchase in Sydney, and tried lucerne for the first time. There was no difference of opinion regarding the feeding value—lucerne was favored every time.

You roll it and it is stronger,
You mow it and it multiplies,
You tread upon it and it sends up richer
perfume.

Was is it? It sounds like a riddle,
but it is only the late Mr Ruskin's description of grass.

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CITY—Investment, £75 per annum for £1,200. Building could be put there for £1,500 and land given in for nothing.

CROYDON—3 acres close station, rising neighborhood. £150.

NORTH UNLEY—Residence, 8 rooms, bath, pantry, cellarette. Enclosed area, lavatory, stables, trapshed, 1-16th acre. Only 1-8th mile walk G.P.O., close penny section. £890.

CROYDON, close Station—Superb free-stone Villa, 6 rooms, every modern convenience, 50 x 150. £665.

CITY, South Terrace—Well built Villa, 9 rooms, every convenience, large block ground, stables, motor house, concert hall, man's room, etc. Only £1,680.

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PENNINGTON TERRACE, NORTH ADELAIDE—Residence, 6 rooms, bath, etc., stables, trapshed. £700.

Hard Quarters.

It is recognised that the imperfect removal of the milk is a ready way to dry a cow—when this is not wanted. Nature assumes that the quantity produced is not required, and speedily reduces secretion. But it is also well understood that neglecting to strip the udder besides losing the richest of the milk and lessening production, is a very ready way of causing induration of "hard quarter," and converting the cow into a useless animal for milking purposes, when she comes to calve again. On those farms where udder troubles are very frequent, imperfect stripping is generally at the bottom of it, and a change of milker has often resulted in its entire disappearance. With regard to leaving the animal alone altogether so far as milking is concerned, this must be regarded as a highly dangerous proceeding in the case of a cow giving any quantity of milk, and it is only practicable in those cases where secretion is small indeed. Allowing a cow to remain too long without milking, to ensure a full and tempting bag at the time of sale, has often resulted in acute mammitis, and to do this with any animal giving a fair quantity is to run grave risk of injuring the cow, and a prosecution for cruelty. This refraining from milking is known as "overstocking," and is rightly regarded as cruelty, and many successful prosecutions have been carried

out. That the action of milking induces secretion and retards the process of drying, there is no manner of doubt, but better this than subject the animal to pain of prolonged retention and over-distention, and risk of inflammation to the udder. When the gland is obviously distended it should certainly be relieved.

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In order that a cow may yield milk of the best quality she should be young, well-bred, and in good health.

Hurry never delivers the goods in best order.

If a child loses only a half-penny, it is scolded; if it should lose a shilling, quite a fuss is made. And yet no one seems to bother about the large amounts that are yearly lost by careless management of the manure heap.

Those farmers who pay attention to details, keep good cows, use improved machinery, and guard against leakages of all kinds, are the ones who will ride on the prosperity train. Those who neglect their opportunities must bring up the rear as best they can.

Of the 6,000 creameries in the United States something like 1800 are co-operative. The proportion of co-operative concerns is gradually increasing. The annual output is about 500,000,000lb., which sold during 1907 for an average of 28 cents per lb. This means a gross return of approximately 140,000,000 dollars, or about £28,000,000.

A seven-year-old bullock, weighing 2,635lb, was recently slaughtered at Nelson, New Zealand, and weighed after dressing 1,850lb. The fat on his back was a foot thick.

The pig is naturally a forager, and when he is kept confined in the pen and fed only with grain he is in artificial condition, and his general character is changed; he is not the healthy meat-making animal he could be if he could have more liberty and a wider range of diet.

A poor sow is in no condition to make a large litter of pigs. Of course the sow should not be over fat, and she isn't likely to be over fat if she has plenty green food, is not fed with too much corn, and has plenty of range.

Indifference about the bedding of suckling pigs produces many diseases that the farmer is very slow to attribute to his poor care.

Radical difference in treatment and sudden changing of food sometimes results in disadvantage and damage to the health and thrift of the hog.

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We have a large stock of Woollens to choose from.

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Also, a large stock of Gents' Mercery to choose from, which can be purchased at 20 per cent. less than elsewhere.

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15 CENTRAL MARKET.



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Four Prizes of 10s. each.

For the **Best Hand-colored Specimens** of the famous **Canadian Pine Canoe Scene** advertisement, on view on almost every hoarding and in every Chemist's or Storekeeper's shop. There is **no entrance fee**. An Outline Design, on paper suitable for water-color tinting, is enclosed in every package containing a bottle of **CANADIAN PINE COUGH SYRUP**, and this design is to be tinted by *bona fide* scholars of our public schools only. The artist who drew the original will be the judge of the scholars' efforts, and according to his decision the prizes will be awarded as above. The Outline Design for tinting purposes can only be obtained from inside the Cough Syrup Packages. All tinted designs must be completed and forwarded to Agents' address, given below, not later than **October 1, 1908**, at which date competition closes. This will give ample time for scholars in most remote districts to compete for the prizes. Results will be published within a week or two after that date. Further particulars enclosed with each bottle of **CANADIAN PINE COUGH SYRUP**.

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Private Address—Angas Road, Clarence Park.

Answers to Correspondents.

RUFF.—Dog with Cracked Feet.—Probably a mixture of neatsfoot oil and boracic acid would help if not cure matters. Rub on each day for a week. After that occasionally. If from over heat of blood, give twice a week equal parts of sulphur and bicarbonic of soda in its gravy food. Boiled vegetables should also be given in a like manner.

LOOKING FORWARD.—The proportion of linseed used for calf-feeding should be about $\frac{1}{2}$ lb to the gallon of milk, and it should be prepared as a gruel by being steeped for some hours in hot water and then boiled. The linseed must be carefully watched while being boiled, as it is very apt to burn during the process. In order to prevent burning, raise the water to boiling-point before putting in the linseed, instead of putting the linseed into cold water and then boiling it. After the linseed is added to the boiling water, pour in a little cold water, then let it come to the boil, and allow it to remain boiling for 20 minutes, stirring occasionally. This method of preparation has the effect of splitting the seed, thereby rendering the food more easily assimilated.

S.N.—The weight of a backfatter is from 300lb. upward, and the heavier the pig is the better it is liked by the trade. A light baconer is about 115lb. and a heavy baconer about 180lb; the weight of a porker is free from 60lb to 80lb;

while slips of about three months old may weigh from 20lb to as high as 35lb.

SETTLER.—To strain wire netting, attach the end to a bar, either by tying with a cord or wire or weaving the bar through the openings of the mesh. Steady, even haulage applied to the bar will cause the coil of netting to uncoil evenly and without buckling. The netting should be sunk to a depth of at least 6 inches perpendicularly in the ground. The trench to receive it should be cut in a line with the fence-posts. The netting should be tied with eight ties to each panel or fencing, three ties to the wire along the top edge of the netting, three ties to the middle wire, and two ties to the bottom wire, the ties being No 16 gauge wire. Each length of netting should be lapped over the next one 6in, and should be laced up one side and down the other so as to make a secure join.

INQUIRER.—To get rid of bracken fern, either rolling or cutting must be frequently practised. If the country is sufficiently open to admit of the working of a roller, either fluted, or one to which angle iron has been affixed lengthwise, that plan would be best. But good results will be obtained by constant cutting, so as to weaken the plants and eventually cause them to die.

The Ordnance Survey Department at Southampton uses enormous cameras, costing £300 apiece, and taking a plate 45in by 30in.

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The Young Folks.

Quarterly "Meating."

NO ADMITTANCE TO MADE DISHES.

"Order, please!" It was a handsomely boiled leg of mutton that shouted the command.

Again he shouted 'Order,' but minus the 'please.'

The cause of the trouble was a small and frizzled chop, who was explaining that it did sausages and other such plebian edibles no harm to be frizzled to cinders, but that she, a well-cut, respectable, middle-aged chop! Etc., etc.

Of course the sausages and other plebein edibles were outraged, and even a pleasant pink skinned Frankford, piping hot and done to a turn, stuck up for his less fortunate brethren.

The Boiled Mutton looked sheepish when no notice was taken of him, but presently, after thumping the table in vain, he whispered to a sturdy piece of rump steak.

The latter got up from his place, and with an air of authority stalked towards the Frizzled Chop. A dead silence ensued but as the Rump Steak roughly conducted the Chop to the door, a smile began to flicker on the face of every member.

The Rump Steak shut the door with a bang. 'She's well out of the way—its the same every meating—can't hold her tongue. Always running somebody down.' And he settled in his place with a satisfied grunt.

The Leg of Mutton now arose, resplendent in a white waistcoat and artistic caper buttons down the front.

'Ladies an gentlemen, before we go on to other [and more pleasant matters, has anyone any complaints to make?'

A perfect hubbub commenced which only subsided when two unruly sausages and a very rowdy piece of tripe had been forcibly removed by the Rump Steak.

'Now,' continued the Leg of Mutton, with freezing coldness, 'Now, I say, we have a slight degree of order, and will each member in turn state his or her grievances. We will begin from left to right.'

The first member on the left hand happened to be a once-noble piece of Beef, but which, since its roasting, had dwindled in importance. He rose to his feet, and then with a weary and somewhat tragic sigh, squelched back into his gravy.

'Mr Chairman, I have been roasted shamefully, my glorious outside has been burnt to cinders, and my heart is bleeding; and I ask, you, how can I, how can any piece of beef, keep his self-respect when he wallows in such abominable gravy as this in which I am sitting?'

'The Leg of Mutton, indeed every member, even down to a spiteful undercooked Garfish, looked deeply sympathetic and a piece of Bacon, whose duty it was to write down every member's grievance,

spoilt a page of her note-book with hot, salt tears.

The Beef looked grateful for the sympathy, and nestled down again into abominable gravy, with the contented feeling of one who has made a great impression.

Everyone seemed to have a grievance; the poor little piece of bacon nearly fainted at the amount of writing she had to do. The members were very eloquent about their sufferings, thinking that the Bacon entered every word they uttered, but if they had seen her note-book they would have been disappointed, for she made all her entries on this plan—Veal cutlet—Underdone; cooked in batter instead of bread-crumbs; very put out. Lamb's Fry—Well cooked but smothered in tomato sauce; objects strongly. There was only one member who had no complaint to make, and that was an Oyster, who, not being cooked at all, could find no excuse for grumbling. Though the meating lasted far into the night, they never got further than the complaints, and so had to postpone the other more pleasant matter to some future meeting. You should have seen the cook's face next morning when the Bacon handed her the complaint note book. It wasn't nice.

The Perseverance of a Mouse.

A field mouse which had fallen into a hole dug to receive a telegraph pole displayed great ingenuity and perseverance in effecting its escape.

The first hour or so he ran round the bottom of the hole, trying to find some means of escape, but could not climb out. Then he settled down to business. He began steadily and systematically to dig a spiral groove, round and round the inner surface of the hole, with a uniformly ascending grade.

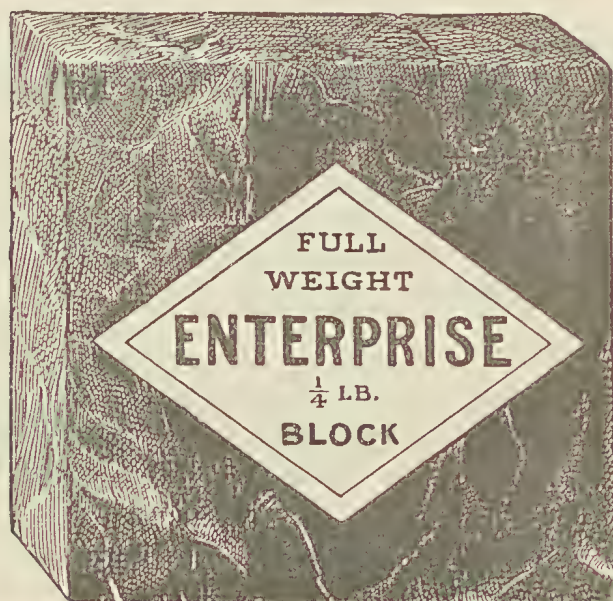
He worked night and day, and as he got further from the bottom he dug little pockets where he could either lie or sit and rest. The telegraph workers who had noticed his plight, and were curious to know how he would escape, supplied the little engineer with food.

At the end of two weeks the mouse struck a rock. This puzzled him. For nearly a day he tried to get under, around, or over the obstruction, but without success.

With unflinching patience he reversed the spiral, and went on tunnelling his way in the opposite direction. At the end of four weeks he reached the top, and probably sped away to enjoy his well-earned freedom. His escape was not observed.

When the food was put in in the morning, he was near the surface, but at night the work was seen to be complete, and the little engineer, whose pluck and skill had saved his life, had left.

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Frequently a calf may start out well, but may not develop rapidly unless carefully watched.

If gas lime is used it should be applied at least two months before the sowing of the seed. It should not be applied to grass land.

Few farmers allow for the depreciation of the soil. The accumulating overdraft owing to the soil will sooner or later have to be repaid.

Several farmers in the Euroa district (Victoria) have been experimenting on a very cheap and apparently effective way of combating the rabbit pest. The plan consists of placing an old newspaper in the mouth of the burrow, and then stopping the hole with earth. The rabbit, being a very timid animal, is frightened by the rustling of the paper and dies in the burrow, while rabbits attempting to reopen the whole from the outside are

scared away by the same cause. The results obtained so far have been completely successful, and many landholders are now giving it a trial. The plan has everything to recommend it in the way of cheapness and simplicity.

A new plant has been discovered in Brazil, which, according to the United States Consul at Rio Janeiro, may revolutionize the linen industry of the world. Samples have been received at Washington, and experiments have reached a point where it is stated without question that the fibre is a success, and that its influence will be felt in the fabric world. The plant is virtually a weed, growing from 12ft to 18ft high in four or five months, and resembles the hemp in general appearance. It is hardy, requires no cultivation, and matures so rapidly that three crops can be grown in a year. The fibre runs generally into

three grades—the first of which corresponds to the best linen, the second to coarse linen, and the third to European hemp. From the fibre of the plant, therefore, come both fine linen and coarse rope. The residue of the plant is suitable for the manufacture of fine writing paper.

The rain's a tidy parlor-maid
She dusts with care each separate blade
And the high walls of the skies,
And Mother Nature, too, is wise,
And often has a cleaning day
To wash the dust and dirt away.
On the carpets of the fields,
Well her broom of storm she wields;
On her furniture of trees
The feather duster of the breeze.
Then she's ready, when that's done,
For her company, the sun.



Plant Stands.

There is nothing which contributes so much to the adornment of a house and its surroundings as a few well-grown plants, in either pots or tubs. Many a verandah, balcony, hall, or living-room may be beautified at a small cost, and with very little trouble. A large variety of plants are suitable for the purpose, and these may be flowering or what are termed foliated plants, such as palms and ferns. In many a corner, ingle, or window, a plant of some sort seems almost a necessity. The selection of suitable subjects should depend upon the position they would have to occupy. For a cool, shaded one, ferns may be chosen, and these may be found among the *Lomarias*, *Nephrolepis*, *Davallias*, and some of the smaller growing tree-ferns. Numerous kind of palms may be used for both sunny and shaded situations; *Kentias*, *Latania Borbonica*, *Chamaerops*, *Arecas*, and *Phoenixes* are useful kinds. *Hydrangeas*,

Farfugiums, *Cyperus alternifolius*, *Agapanthus*, *Pelargoniums*, *Fuchsias*, and a host of other plants may be used with good effect.

In ordinary flower-pots plants do as well or better than in most other things, but they are breakable, and the larger sizes are dear. We can suggest a couple of useful utensils. The first is a grocer's butter bucket, which requires first a good scrubbing in a hot soda bath, and when dry, a couple of coats of floor stain. Copper-zinc bands, about 1½ in. wide can be obtained at the ironmonger's, and these are easily fixed round with small copper nails, and should cover the hoops which keep the bucket together. The addition of a couple of ring handles, although not a necessity, adds greatly to the appearance, while, as can be seen, the stand is simply a cheap three-legged stool, stained to match the tub.

The next is to make a good stout square box, the lid being sawn up to make the supports, which are screwed on from

the inside. A fairly wide picture moulding, which if sizes are given at the shop will be supplied ready mitred at the corners, must be neatly fastened round the top, and a coppered band, about half-way down the body gives the finishing touch.

New Use and Culture of Evergreens.

Under this heading, Bulletin 190 of the Ohio Agricultural Experimental Station publishes an article, which is thus summarised:

Because of their enduring foliage, evergreens should be more extensively planted about country homes, whether used in straight-row windbreaks or mingled informally with other trees on the lawn. From the ornamental standpoint, they abound in rich, dark shades of green, equally valuable as a background for deciduous trees or flowering shrubs and plants. The finest of the larger ornamental evergreens are the white pine, Colorado blue spruce, white or silver fir, Oriental spruce and American hemlock. Of the smaller ones none is better than Siberian, Hovey's golden, pyramidal or globe *Arbor vitae*, thread-branched Japan cypress, graceful obtuse-leaved Japan cypress and plume like Japan cypress. The best evergreens bearing foliage in shades of yellow are Geo. Peabody *Arbor vitae*, golden pear-fruited Japan cypress and golden plume-like Japan cypress. In making an evergreen hedge use American hemlock or Siberian *Arbor vitae*. For specimens to be shorn into fanciful shapes, use common red cedar, blue-tinted cedar or any *Arbor vitae*.

As a protection to farm buildings, the barnyard, or poultry run, a good windbreak will repay its cost in a few years in the saving of fuel or feed.

The length of time consumed in its growth need not deter anyone from making a windbreak, as results may be secured in half-a-dozen years by planting thickly, subsequent thinning to be practiced.

For the construction of windbreaks and shelter belts the pure white pine, Norway spruce, Austrian and Scotch pines and American *Arbor vitae* have no superiors. These kinds all grow rapidly and are not advancing in vigor or adaptability to thin soils, exposed situations and other adverse conditions.

[It is hoped that no reader will so misconstrue any part of this article as to plant evergreens exclusively about the home. Deciduous trees occupy a place in any scheme for beautifying lawns which conifers alone do not and cannot fill. When surrounded and completely enveloped in a dense growth of evergreens, a style of planting somewhat prevalent a few decades ago, and of which examples are even now occasionally seen, a residence becomes dark, gloomy, damp and dangerous to health.—Editor "The Australian Gardener."]

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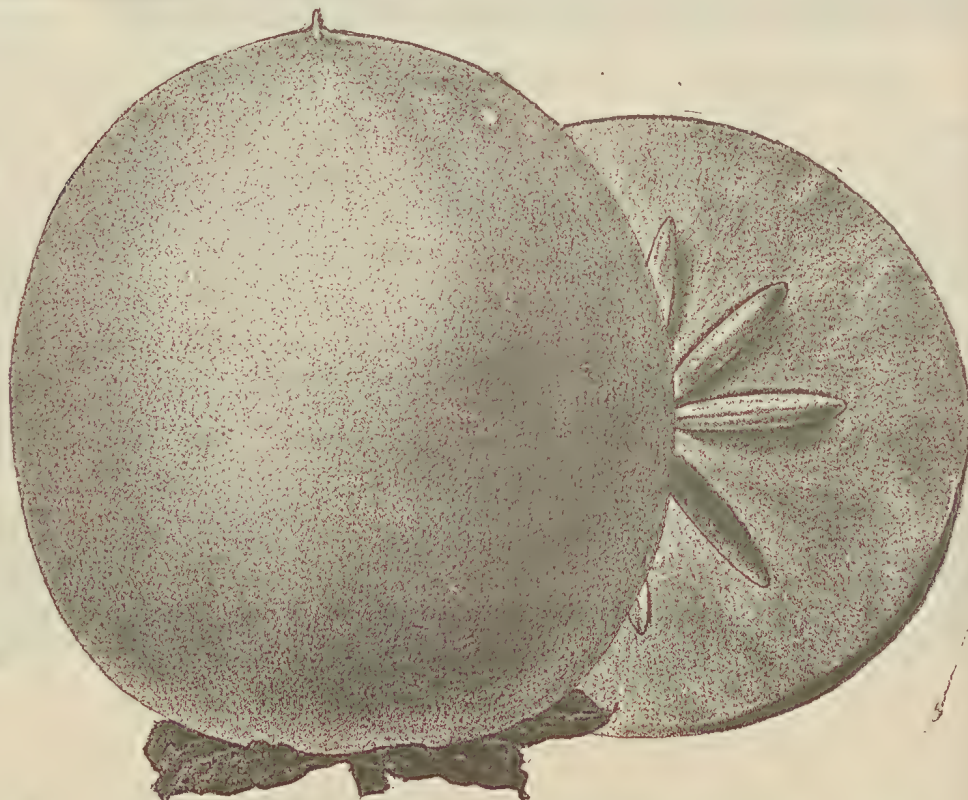
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The Nursery Business.

With regard to the above a correspondent writes as follows:—

Now, who is, and what is, a successful nurseryman, and from what standpoint do we judge his success? A successful firm says, "The satisfaction one receives largely constitutes the real enjoyment of living." There is a whole lot of good sound logic in this. Satisfaction is akin to success. But we are a practical lot of people and our financial standing will meet with the worldly view, so I shall cast sentiment aside.

When I commenced the business, all we had to do was to grow a stock of trees—a little of everything, see how many varieties of apples, pears, and plums you could have so as to satisfy the wants of the planter who wanted a family orchard just for variety, and the order generally read, "Put in one or two of every variety you have." The evil of the nursery business in those days was too many varieties. I am afraid the evil still exists.

Nowadays it is one thing to grow trees and another to sell them. There is a story told of a man who had a herd of cattle and died for the want of a beef-steak. So the nurserymen who are good growers can raise a fine block of trees,

but you can't eat trees, and they die with trees on hand. For sake of convenience I figure that a good grower, when he delivers the product of his fields to the packing house, has earned 25 per cent. Then comes the disposing of them. If very successful he sells all and 35 per cent is added, thereby realizing 60 per cent. But supposing this only reaches the 50 per cent. mark. Then comes the collections and where are we at? You can figure this at 40 per cent. or 100 per cent. A nurseryman who operates extensively informed me that 75 per cent. is a very poor showing. No matter how good prices one gets, the loss of 25 per cent. or even 15 per cent. or 10 per cent. is too great. Upon the collections depends our success.

The nursery business of to-day is tremendous in its scope, and to master it in all its details is too much, and likewise unnecessary for any one mind. In my humble opinion, the specialist who follows along any one of the many diversified branches of nursery work has more chances of success than the one who handles everything. But whoever grows good stock, sells it, and collects 100 per cent. ought to be successful; if he collects less, his success will be proportionate. There is no royal road to success, and, incidentally, "there is nothing succeeds like success."

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The Australian Gardener. NOTICES.

THE AUSTRALIAN GARDENER has become so popular and the circulation has grown so much faster than our advertising receipts, that we are compelled to increase our charges for advertisements, which may be handed into our office on and after the first of September, 1908. Advertising came and stayed, because THE AUSTRALIAN GARDENER is a wonderfully effective medium, in city, suburbs, country, State and inter-state. We are preparing a series of articles for the September issue and Show. We are glad we have a large beautiful journal with a splendid advertising patronage, and the publisher who overtakes us will have to be sound in wind and limb and powerfully speedy.

The public are notified that a sample copy of this journal will be sent to anyone asking for it, and if satisfaction is given, send along 3s. 6d. for a year's supply, post free.

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Contributors.

All letters, manuscripts, and matter intended for publication should be addressed to the Adelaide Office, corner of Pirie and Wyatt Streets, Adelaide, and in order to appear in the following issue should be posted to reach Adelaide by the 20th of the current month. It is necessary that correspondents should furnish their names and addresses.

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The Farm.

Cultivation of Lucerne.

It is generally admitted that our lucerne fields would be considerably benefited by regular cultivation. Bearing on this question, 'The Cape Agricultural Journal' publishes an interesting report of a field-trial of lucerne cultivators at Cradock. The necessity for an effective implement for this purpose is so fully realised at the Cape that two years ago the Cradock Agricultural Society offered a prize of £20 for a lucerne cultivator, to be shown at work. This trial duly took place, but the machines did not do their work to the satisfaction of the growers. As a result, four gentlemen interested in lucerne-growing each guaranteed to obtain £25 for a further trial. This was held in March, 1908, and 11 implements completed, the £100 prize being awarded to 'The Lucerne King,' designated and manufactured specially for this contest by Mr L. Roberts, of Kroonmies (Cape Colony). This machine is described as consisting of two gangs of spiked rollers following each other, and in turn followed by a spring-tooth harrow attachment, which can be used or put out of action by means of a lever. It is claimed that this implement will, on ordinary ground, give six to eight inches of perfect tilth. The other implements were made in the pattern of rotary discs or spikes or combinations of both. In every case stress is laid on the fact that the implement will thoroughly pulverize the soil

to a depth of several inches. The judges, in their report, expressed the opinion that the spring-tooth cultivator attachment to the winning machine was not necessary, and the price (£20) could therefore be reduced.

The Kansas Agricultural Experimental Station, after several years' experimental work in disking of lucerne, reports:—"We recommend that every year the lucerne be disked early in the spring. We would a great deal prefer to have it disked in the spring before growth has started, but in 1901 we disked alfalfa when six inches high without injuring the plants. Disk immediately after each cutting throughout the season, no matter how often the alfalfa is cut. The disking will make the crowns throw out many new shoots, will form an earth mulch over the land, preventing loss of water from the soil, and will kill weeds and crab-grass. In dry, hot weather alfalfa should be disked when hay is removed, if possible, as a week's exposure of the soil to the sun and winds without disking may cause the evaporation of an inch of moisture.

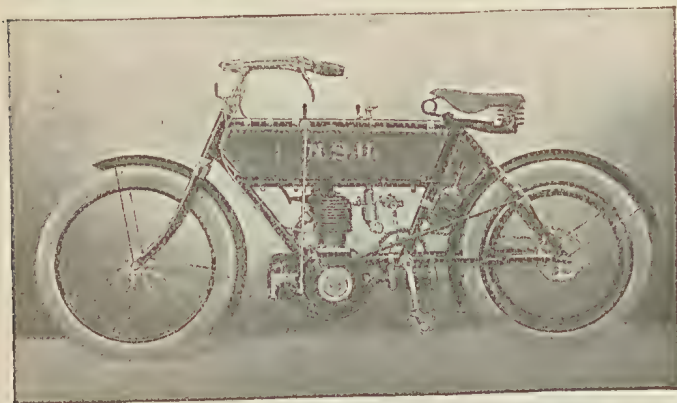
If the stand of alfalfa is fair to good, set the disks at the least angle at which they will turn the soil over, and weight the disk-harrow to make it cut into the crowns to a depth of two inches. If the alfalfa is old, and the growth of crab-grass thick, set the disks at as great an angle as possible, and if this does not tear the soil and alfalfa roots pretty thoroughly, cross disk with the disks set the same as for the first harrowing. A disk-harrow will not hurt an old alfalfa root and will usually do it much good.

When disking the ground should be stirred and pulverised sufficiently to form a good earth mulch two to three inches thick. In mid-summer, on hard, dry soils, it may be necessary to disk and cross-disk to secure this result. On loose, sandy soils, a light disking or even harrowing with a smoothing harrow, may produce this mulch. As stated under the previous heading, whenever alfalfa does not thrive, cut it. Immediately after cutting the alfalfa, disk it, and did disk it thoroughly. If the succeeding growth is not healthy, cut and disk again, and repeat these operations until a thrifty condition is secured. Unless Alfalfa is hopelessly injured through some cause, this treatment will put it in good shape."

When disking in the spring, it is a good practice to apply a few cwts of manure such as bone-super, bone-dust, etc.

Destruction of Charlock.

Wherever charlock grows plentifully in wheat fields considerable loss results to the farmer in that it smothers young plants, but its effects are less manifest in early-sown than late-sown spring corn. It sucks the substance from the land. Its large exposure of leaf surface exhales so much moisture that it deprives the roots of a corresponding quantity. This is particularly apparent on light and dry soils. Seeds sown along with corn feel the pinch of competition when the charlock has been very severe. It is known to be a host of the finger-and-toe fungus and likewise the turnip-flea beetle and



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NEVER **S**TICK **U**P

MOTOR CYCLE

Climbs Hills 28 miles per hour without pedal assistance.

The ENGINE TESTS recently held resulted in the Celebrated N.S.U. MOTOR CYCLES being FIRST, SECOND, and THIRD out of thirteen competitors. This was at the South Australian Automobile Club's Annual Hill Climb, when we also secured Fastest Time for the Second Year in succession.

This Contest is the Only Motor Cycle Engine Test that has been held in South Australia this year. We can prove this

See our £10 10s. Cycle, best quality and fully guaranteed specification. Genuine B.S.A. Bearings, Eadie Coaster and Free Wheel, Renold's Chain, Brooks' Saddle, Dunlop Oceanic Tyres, Reversible Handle Bars, any height frame and any color enamel.

ONLY £10 10s

EYES & CROWLE, 125 and 127 Pirie St, Adelaide.

and turnip weevil as well as other insects feed on it.

Thus it is one of the worst because one of the commonest of pestiferous weeds, whose familiar yellow flower is seen in many parts of the country, and much money has been spent, not always fruitfully, in the endeavor to exterminate it by altering rotations, extra cultivation, and other means. It is pointed out that the rough-leaved charlock should be distinguished from the smooth, the rough leaves being an important factor in the extermination of the weed by spraying. The seeds of charlock owing to their oily nature, are long lived, and this vitality has been a source of trouble on every farm. When ley is ploughed preparatory to oats, the seeds that have been buried come to the surface and germinate. In the ordinary course of ploughing, the stubble buries these seeds at a depth sufficient to keep them dormant, but they return to life when brought to the surface again.

The best method of dealing with the pest is by spraying, and this is successfully done in an English farming district, the requisite conditions being—Proper mixing of the sulphate of copper, which should be finely crushed and of purity of 98 per cent., clean water, the solution being put through a canvas bag into the spraying machine; fine weather at the time of application, and the application of the spray either when the plant is from 3 to 4 inches high or in the flowering stage.

The method of preparing the solution is as follows:—Take, say 15lb of sulphate of copper and a few gallons of cold water in a wooden tub: dissolve and dilute with water to 50 gallons, which is equivalent

to 3 per cent solution. The cost of this solution per acre is 4s 6d, and, allowing that 20 acres are sprayed in a day with a twelve-nozzle machine, the total cost per acre is 5s and 3d for material and labor.

To apply the solution, a machine used in Lancashire is suitable for attaching to a farm cart. It consists of a wooden barrel placed on the body of the cart and large enough to hold 50 gallons of water. A pump is screwed to the bottom of the cart with an outlet tube connected to the base of the barrel. The apparatus for distributing the spray is lashed securely to the cart, being connected by means of a rubber tube to the outlet side of the pump. Two men are required to apply the spray evenly, one to work the pump and the other to lead the horse, a strip of land about five yards wide being sprayed at each round. That, of course, is a primitive form of sprayer, but it can be had especially made for the purpose, and a good plan would be for farmers to combine to purchase one.

Results of spraying in Lancashire indicate that in suitable weather, when the plant is sprayed in its young state, more than 75 per cent of the charlock plant has been completely destroyed, and where actual death has not resulted growth has been sufficiently retarded to enable the corn to push ahead. To complete the operation and make an entire success of it, it is better to repeat the spraying about a fortnight after the first. It appears to be immaterial whether sprayed in the flower or in the young stage. Results appear to vary. Those with smaller farms can apply the spray at the rate of 3 acres a day from an ordinary knapsack sprayer.

The richest part of any manure is that which water will wash out.

The value of a good horse is greatly enlarged by having a good form and striking appearance.

The horse that contracts bad habits readily is generally one that can be taught the most useful traits with least trouble.

The purer bred the stallion, the more impressive he will be and the more likely are his colts to be what you are breeding for.

Colts from sires that are ridden, driven, and worked are uniformly more tough and active than these from sires kept in the stable and fat.

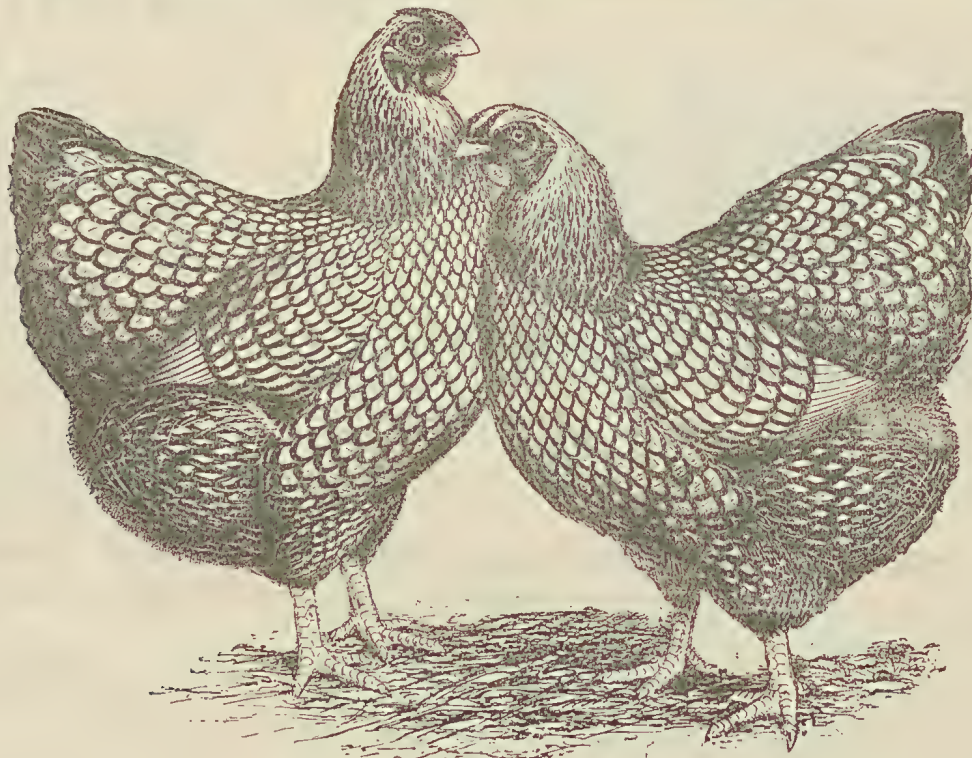
To have the horses get their greatest benefit from their feed, give them sufficient time to masticate it before putting them to work after a meal.

If you want to get the full capacity out of your horses without injury use moderation at the beginning of every task imposed upon them.

Strength, endurance and speed are not all developed by violent usage, but rather by a judicious amount of exercise given so as to develop but not strain.

King James I. had a good eye for horses. He paid £500 for the first Arab horse brought to England. It was called Markham Abraham and as a sire, introduced an Arab strain to the studs of England.

Every pint of drainage from the manure heap represents the waste of money, and after rain has fallen on an unprotected heap, the loss may run into shillings.



❖ The Poultry Yard. ❖

Diseases of Fowls.

(Continued from last issue.)

CROUP TROUBLES.

There are several diseases of fowls' crop, the majority of the cases being brought about by careless feeding, while sometimes it is due to the birds themselves.

The fowl's crop is found at the bottom of the gullet, and from various causes the food may become stopped there, just as it had been swallowed. In the course of the fowls' wanderings they swallow a very wide collection of materials—seeds, weeds, insects, worms, grubs, pebbles, etc., and if long, coarse grass is had access to, some of this may form into a ball and obstruct the passage, with the result that the bird gets no nutriment at all, becomes hungry, eats more, all of which lodges in the crop until it assumes an enormous size, and, when noticed, the fowl, through starvation, has become shockingly thin of flesh, and to save its life treatment is necessary. Yarded fowls, if they have been receiving no green food, and are then supplied with large quantities of it, sometimes eat to

repletion, and the crop, being unable to perform the first and necessary assimilation or softening process, the food forms into a ball and being unable to press down through the passage is a cause of hard crop.

Feeding new soft wheat or maize is often responsible for another sort of crop trouble. The grain swells, the crop becomes a hard mass, treatment again being necessary. Occasionally a piece of broad grass has been swallowed; this getting across the passage bars the food from its legitimate course, and causes swollen crop. Often a piece of string gets into the bran or pollard and may cause the obstruction; or other things may be responsible.

Frequently a fowl may have swollen or enlarged crop for some time before the owner is aware of it, and at times the bird pines away and dies before the cause is known, for, apart from mopishness and a listless appearance, there is nothing to denote the illness except the bird is caught and the crop is examined. Sometimes a bird may be caught and, through having eaten a big feed, may appear to be crop-bound when such is not so; and to make sure in all cases the bird should be confined for a dozen hours in some place where there is no food, and if crop-bound the enlargement will still be there, but if the crop has become empty the fowl may be placed back in its run.

Should the contents of the enlarged crop be maize or other grain the simplest remedy is to pour, say half a tea-cup of moderately hot water down the fowl's throat, knead thoroughly on the outside with the fingers, when the mess will be broken; then take the fowls by the legs, also holding the wings, allowing her head and neck to hang down at full length, with a downward working and pressure of the fingers of the right hand, and placing the forefinger of such in the bird's mouth to keep it open; the grain and water will readily empty out. Several emptyings will be necessary, for the bird can be held in the position but a short time, otherwise it will choke. After each emptying, more water will have to be administered, and the last should contain a teaspoonful of sweet or salad oil, and be allowed to remain in the crop, when there will possibly be no more trouble. The bird should be removed to a pen by itself, and in an hour or two receive a small feed of bread and milk.

There are times when the removal of food in above way does not remove the obstruction, and should the crop again become distended, an operation will be necessary.

The other troubles are soft crop, and inflammation of the crop. Mr E. Brown, an English authority on poultry diseases, says:—

FRANKENBURG'S for Watch & Jewellery Repairs

(25 YEARS' PRACTICAL EXPERIENCE).

126 Rundle Street, next to Plough and Harrow Hotel.

Watches
Cleaned
and
Guaranteed
for
12 months
from
2s. 6d.



BEFORE GOING TO

Bargains
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Jewellery.
Our Noted
Lever
Watches
Guaranteed
from

10s. 6d.



AFTER COMING FROM

Spectacles
to suit
all sights
from
1s.

FRANKENBURG'S, Expert Watchmakers, 126 Rundle Street,

NEXT TO PLOUGH AND HARROW HOTEL.

SPECIAL NOTICE—Repairs and Orders by Post receive special attention.

It is not easy to exactly determine the causes of soft crop, but in many cases it is due undoubtedly to very acute indigestion; sometimes it is owing to water or air in the crop. I have upon several occasions known soft crop to occur after a case of crop bound. If the crop is felt it will be found to be soft, resembling a half-filled balloon. The disease can sometimes be cured by holding the bird upside down squeezing the crop between the hands which expels the air or water, as the case may be. If this is ineffectual, it is necessary to make an incision with a sharp knife or needle. The greatest care must be exercised in the feeding, and little or no drinking water should be supplied. It is advisable to keep the bird by itself, where it can procure no food, as carelessness in feeding may have very serious consequences. The bird should never be allowed to eat to repletion. If any drinking water is supplied it should only be given after each meal, and to it a few drops of nitric acid should be added.

INFLAMMATION OF THE CROP.

A bad case of inflammation nearly always ends fatally, and it is only during the early stages that a cure is likely to prove successful. The cause of this complaint is the presence of an irritant poison, and the symptoms are difficult breathing, a mopish and dull appearance, and constant vomiting. Mr W. Hill, an authority on the diseases which affect poultry, recommends the following treatment—Mucilaginous or albuminous fluids, such as barley-water, milk and isinglass, or a thin solution of gum, should be freely administered after first evacuating the crop. Should phosphorus have been taken, magnesia may be given, followed by turpentine mixed in cream. Oil must not be administered. Lead is often a cause of poultry-poisoning when paints

are about. In this case the crop should be immediately evacuated, and half a teaspoonful of sulphate of magnesia and five minims of sulphuric acid, mixed in a wineglass of water, be administered without delay. In a couple of hours five grains of iodide of potassium may be given in a teaspoonful of water. Afterwards feed on macilaginous liquids. If purging commences, give a teaspoonful of castor-oil, with a grain of opium. Crude or unslaked lime is an irritant poison to fowls, producing inflammation of the throat, crop, gullet, gizzard, and intestines. In this case oil should be at once administered, followed by full and frequent doses of macilaginous or albuminous fluids.

(To be continued).

Egg Export Trade.

Mr. D. F. Laurie, poultry expert, has forwarded to the Minister of Agriculture (Hon. L. O'Loughlin) the following report on his recent visit to the eastern States:—

"I have the honor to report that I visited Brisbane, Sydney, and Melbourne, for the purpose of enquiring into the egg export trade, and visiting the principal poultry farms. While in Brisbane I attended an auction sale of eggs and poultry, and was much struck with the fair methods adopted in the interests of the producers. All the high quality eggs were shown in separate packages, carefully graded according to size and color. These were submitted in the presence of their owners, and I noted that the superior qualities of well-graded eggs brought as much as 3½d more than ordinary fresh eggs. We need something of this sort in Adelaide, because, at present, one egg is considered as good as another in the trade. I visited several

poultry farms, ranging from 300 to 800 birds, and made careful enquiries in the methods of feeding and housing. I also went through Hutton's which is probably one of the largest private poultry farms in Australia. On my return journey I visited the Gattin Agricultural College, where I was received with great courtesy by the principal, Mr. P. Mahon. They breed a lot of poultry there, but the system adopted would not be suitable for our climate.

"While in Sydney I made full enquiries, with a view of, later on, establishing a trade in the better quality of eggs obtainable from our best producers, and feel certain that a better price can be obtained than rules here on the average. Eggs were recently sold from 2/6 to 2/9 a dozen at public auction, while here they only reached 1/7, and the total cost should not be more than 1d a dozen. I spent a day at the Hawkesbury Agricultural College, and carefully examined all their birds, and made enquiries into various matters. On my return to Melbourne I visited the freezing works, and afterwards visited several large farms where poultry is bred most successfully. In conclusion, I am thoroughly satisfied with the results of my trip, which must be of very great benefit to our poultry-breeders here, as I have seen the workings on the principal farms in the three States for the purpose of comparison with our own."

An Improved Poultry Food.

With the object of putting to better use some of the waste products of the killing sheds at the Produce Depot, the Minister of Agriculture (Hon. L. O'Loughlin) instituted enquiries several months ago, and is now able to report that the enquiries had been attended with every success. He states that before long the works manager of the depot (Mr. McCann) would be utilising the "plucks" of the lambs for poultry meal. Hitherto these waste products have been used in the manufacture of blood manure, and sold at from £6 to £7 per ton, but in future they will be converted into poultry food, worth about £15 per ton. It is understood that Mr. McCann will not begin the manufacture till after the lamb season. The products required for the purpose can be cold stored till then. Mr. McCann hopes to have a number of samples ready for exhibition at the September Show. The Minister is confident that the new industry will mean an addition of several hundred pounds per annum to the revenue of the depot.

It is computed that the annual value of the poultry products of New Zealand is not less than £2,000,000. At the last census of 1906, the poultry in the Dominion numbered 3,191,694.

SOUTH AUSTRALIAN CYCLE DEPOT.

Royal Enfield Cycles, £10 10s. to £20.

Beeston Cycles, £8 10s. to £16.

Liberal Terms. Exceptional Guarantee.

117 Rundle St., Adelaide

The brown variety of leghorns, although not so popular in Australia as their white brethren, are a most useful breed of fowls. They are exceptionally vigorous, and their egg-laying powers are beyond reproach. They are, in comparison with most fowls, a very ancient family, for colored models of these fowls have been found amongst the ruins of Pompeii. In the opinion of some breeders, the brown Leghorn is a better bird for the table than the white, and taken altogether the brown Leghorn may be classed as a most useful fowl for all practical purposes. The brilliant coloring of both sexes of these fowls make them an attractive addition to any poultry-yard, and, consequently, they are esteemed by those who like good looks to accompany good performances.

The number of hens to be mated to one male bird varies according to breed, age and season. For the larger types of bird (1) for a cockerel, until end of February, three hens, after February increase to 4 or five; (2) for a cockerel that has moulted once, until the end of February two hens, increasing to three or four; (3) for an old cock, until end of February one hen only, increasing to two or three. For the smaller breeds—(1) cockerel, early, four to five hens, later six to nine; (2) cock once moulted, early, three to four hens, later five to seven; (3) old cock, early, two hens, later four to five.

There are, however, many modifications suggested by health, surroundings, &c.

As to age a hen is at her best in her second year. A six months' old pullet has not done growing, so that a great deal of her vitality, and strength goes to make up her own frame.

Do Poultry Pay?

Yes, if you REGULARLY use

"KONDO"
Poultry Food.

POULTRY FOR PROFIT is a very interesting subject, and one that is not yet definitely settled in this country. However, there is one thing certain, if Hens can be made to lay a large number of eggs, and they do not die from sickness, Poultry-keeping would pay, and pay very handsomely. "KONDO" Poultry Food will assist the former, and by keeping the birds healthy greatly reduces the latter.

To be had from Streakeepers, or from

R. G. LILLYWHITE. Sole Agent,
'Phone 2250. 10 Alma Chambers.



MY JEWELLER.

G. W. Cox,

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CLOCK REPAIRS.

Good Work at Moderate Charges.

Watches Cleaned from 2s. 6d.

A well-selected stock of Watches and Jewellery at fair play prices.

Rundle Street, OPPOSITE
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STRANG & CO.,

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SHEARER & GURR,

(Late Shearer & Hubble),

TAILORS, COSTUMIERS, and MERCERS,

Gawler Place, opposite State Bank,

Two Doors South of Pirie Street,

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Every order placed with us carries this guarantee—Perfect Fit, Style, and Workmanship.

Our Cutting Room is under the able management of Mr. Shearer, who has been in this line of business for upwards of 30 years, and has been engaged by some of the Leading Firms of this State.

Latest fashions arriving by every mailboat, also a very large stock carried to select from.

Our Mr. Gurr visits Country Districts every three months, North and South.



The Orchard.

The Value of Walnuts.

HOW TO GROW THEM.

The value of the shelter belts as a means of protecting fruit trees from high winds is now so generally recognised that there are few orchards of note in which provision either has not been made, or is being made, for enclosing the area. In many of the Tasmanian orchards the walnut is very much in favor for this

purpose. It is found to do so well that beyond the useful and ornamental values of the belts provided they are also profitable. In an article appearing in the 'Weekly Chronicle' on "How to grow the trees with success from the seed." Mr H. E. Dosch makes the following remarks—

In nut culture of all kinds, but more especially walnuts, three things are most essential. These are soil, generation, and variety. Nut trees of all kinds do well on moist, well drained soil, even rocky ground. They are gross feeders, but they must be loose and open, so that the tap-root can grow down as far as it desires. As soon as it strikes hard pan, the tree stops growing, and, of course, lessens the nut crop, as nut trees make few lateral roots. In fact, it is suicidal to plant nut trees on very heavy, stiff clay soils, or in soil underlaid with hard pan. This applies particularly to walnuts.

THE TERM "GENERATION."

Walnuts should be "second generation." either grafted or grown from first generation nuts. First generation nuts are produced on original trees, or on trees grafted from the original trees. These nuts when planted, produce second generation trees, and the nuts from these trees grafted from the original trees, first

generation. Trees grown from second generation nuts retrograde very rapidly, not half so large as even first generation and finally run out altogether. Hence one must plant nuts from the original trees if one desires the best results.

SPROUTING THE NUTS.

Many planters prefer to plant the nuts where the trees are to grow, instead of extensive grafted trees. The nuts for this purpose must be secured in the autumn, and must be of first generation, either from the original or grafted trees. They must be true as to that point, or else the grower will be disappointed when the trees come into bearing. Fill a box 6in with light soil and sand mixed, and put in the nuts, pointed end up, about 1in apart; cover them 3in or 4in deep, and place the boxes out of reach of rats, keeping the soil moist. On examination in the early part of April it will be found that all sound nuts have sprouted, or are ready to sprout, that is, they throw up two sprouts from the pointed end of the nut. One of these sprouts turns down over the nuts and forms the tap-root, and the other continues upward and forms the tree. Now, remove them very carefully, as these sprouts are very brittle and easily broken. Plant them either where you wish the tree to grow, 50ft apart (by the west way), or

JOHNSON & HARFIELD,

New Market, Adelaide,

WHOLESALE FRUIT & PRODUCE MERCHANTS.

Fresh Fruit and Vegetables packed and forwarded to all parts of the States at lowest rates for cash. A trial solicited.

HARRY F. KING,

Licensed Land Broker,

House, Land, Estate, Financial, and
Insurance Agent.

22 Pirie Chambers, Pirie St. Adelaide

Houses and Land Bought and Sold on Commission.

All Real Property Act business attended to.

Mortgages, Transfers, Leases, and all other documents
prepared.

Transfer of Crown Leases a speciality.

Money to Lend on Freehold and other Approved
Security in Sums to Suit Borrowers.

Several Nice Farms and Gardens for Sale.

in nursery rows about 5in deep, and transplant the next year.

The young trees should be allowed to grow straight up, cutting away every autumn all the side branches, till the tree has reached a height of 6ft. It should then be allowed to branch out, but under no circumstances should the main stem be cut off. Walnut trees usually go into bearing in five or six years; at twelve years they are in full bearing. It is not a slow grower, as commonly supposed. Three to four feet is not an uncommon growth in a season on good soil; besides, it is a healthy tree, having, comparatively speaking, few pests to molest it. Once established, it lives to a green old age, and proves profitable to generation after generation with ordinary care. The ground beneath the trees, until they come into full bearing, can be utilised for berries or vegetables, but no grain or grass should be grown.

GATHERING THE CROP.

At harvest time the nuts fall to the ground as soon as their hull bursts—which it does when the nuts are ripe. They should then be cured, either in the sun or subjected to a gentle heat in an evaporator to prevent them becoming mildewed or rancid. Any nuts remaining on the trees after the majority have fallen can be beaten down with a stick.

Fruit-growing.

It may be confidently asserted that no portion of the world is more admirably suited to the production of a very wide range of those fruits which belong to the temperate and sub-tropical zones than is the state of South Australia. Let the horticulturist of Europe or North America

imagine strawberries, cherries, apples, pears, walnuts, gooseberries, plums, apricots, peaches, quinces, loquats, almonds, olives, figs, grapes, oranges, lemons, and mulberries—all growing together on a 10-acre block, and with no aid save that afforded by the natural rain and sunshine bringing their fruits to the very highest state of perfection—and he will realise not what can be done, but what is a common result obtained in many of the gardens in the hills and gullies near Adelaide.

In the 400 miles of country which stretches from Penola or Mount Gambier in the south-east to Wirrabarra in the north, are included thousands of acres of land with possibilities for fruit production almost incalculable. Within that area are encountered all the varying conditions of rainfall, soil, and sun heat requisite to the many phases of fruit culture; and this great range of climatic conditions affords opportunities for specialisation. The growth of the industry—since it has been recognised as such—has been along these lines, until now we find groups of fruit-growing centres clearly defined, both in their areas and in their productions. In these, the cultivation of fruits hailing from colder zones chiefly follows the elevated lands, while the heat-loving sorts find congenial surroundings upon the sunny plains between the ranges, to an extent only limited by the supply of available moisture in the soil. In the south-eastern portion of the State, the apple, pear, and plum reach that perfection which has been usually considered a privilege of colder countries only.

At the Coonawarra Fruit-growing Colony—established about 18 years ago near Penola—there are hundreds of acres of orchards grouped in one continuous area. From this centre thousands of cases of fine apples are annually exported to countries outside Australasia. Situated within a mile of the Government railway line, ready facilities for transport are handy, while in other respects the settlers enjoy a community of interest not possible in more scattered localities. The rainfall here is abundant, reaching about 27in. per annum. The intending settler can secure such land at about £5.

Orchards Gardens, Orangeries, &c.

We have a Splendid Selection of Really Good Payable Properties, some with Grand River Frontages and Irrigation Plants.

Also Good Lucerne and Dairy Properties.

Also a number of Choice City and Suburban Residences, some of the latter with few acres attached

Clients driven to inspect, free of charge.

PRIEST & JAMES.

LAND AGENTS,

30 Pirie St., Adelaide.

TELEPHONE 1817.

per acre upwards. The cost of preparatory tillage, trees, planting, and fencing against domestic animals and vermin, would range from £8 to L10 per acre.

Further north across the Murray River, in the ranges which arise near Cape Jervis, and pass behind Adelaide to Gumeracha—a stretch of about 100 miles in length—abundance of fine land most suitable for fruit-growing is located. This country is favored with a rainfall which varies in different parts from 25in. to 35in. per annum. In consequence, the land is usually heavily timbered, and although the purchase-money may be as low as L3 per acre in places, the expense of clearing and preparing the land usually brings the cost of constituting an orchard up to L20 to L30 per acre. Against this, however, must be set off the greater variety of fruits which may be grown, the advantages afforded by the close proximity to Adelaide markets and the central depot of railway distribution throughout the state, as well as the nearness to the port of shipment by steamers trading with European and other overseas countries.

On the plains which lie between these ranges and the shores of St. Vincent's Gulf a new zone of production is encountered. Here, with an annual rainfall of a little over 20 in., and a much higher summer temperature, the table grape, fig,

peach, apricot, and pear reach a very high degree of perfection, possessing a flavor seldom met with in any part of the world. The olive and almond are also grown here with much success. On the alluvial soils which have been formed by the overflowing and shifting of the Torrens, Para-Para, and other streams which emerge from the Mount Lofty and Barossa Ranges, the orange, lemon, and other citrus fruits attain the highest degree of excellence, both in quality and quantity. The rich, deep orange-red color of the oranges grown on these lands is seldom reached, and never eclipsed, in other citrus-growing countries. To produce such results, artificial watering is called to the assistance of the orchardist. On these plains the growers chiefly resort to pumping water from wells—in which abundant supplies are almost invariably found at depths varying from 20ft. to 50ft. from the surface. Besides these supplies, these districts are largely reticulated with water mains from the Government reservoirs, and, although at present the price of water is too high for profitable fruit culture, the presence of these supplies is an insurance against drought or injury from the sudden failure of growers' private supplies. Land for grape, fig, peach, and apricot growing may be obtained even within five or six miles of Adelaide, at from L10 an acre

upwards; but the rich alluvial lands suited for citrus trees range from L50 an acre upwards. If evidences of prosperity are reliable data, even at this rate the fortunate owners of such soils are to be envied.

A little further north the Barossa district is located in a range which runs almost continuously from the Mount Lofty Range. Here, around the townships of Angaston, Keyneton, Nuriootpa and Tanunda, large orchards are established. The raisin and currant grapes, the peach, apricot, pear, apple, plum, and fig, meet with ideal conditions in these localities. A rainfall of from 20in. to 30in., according to the elevation reached, supplies—when aided by judicious tillage—the necessary moisture. A well-balanced season of summer heat favors the development of rich saccharine flavors in the soft fruits, and firm, good keeping and carrying qualities in the apples, while at the same time it provides the necessary heat to produce a well-colored highly-finished product in the form of evaporated fruits. In this district land values vary from L5 to L20 per acre, while the cost of preparation and subsequent tillage is cheap.

About 70 miles north-west of Adelaide the ranges of the Stanley district begin at Saddleworth and run northwards for about 35 miles through some of the finest

“Proputty, Proputty sticks.”

Thus sings Tennyson's "Northern Farmer," hearing the refrain in the hoof-beats of his horse.

YOU CANNOT DO BETTER than invest your surplus funds in land. Australia is on the up-grade, and the man who misses his chances now will regret it in a few years time.

HERE IS A BLOCK WORTH BUYING—

PROSPECT.—20 acres, suitable for sub-division, price £1,000, and easy terms can be made.

ANOTHER—

CAMBELLTOWN DISTRICT—30 acres, 5-roomed house, £1,100.

COUNTRY LANDS, including 14,926 acres Cooke's Plains, 6,621 acres Coonalpyn, 1,853 acres Pinnaroo, 5,000 acres Yorke's Peninsula (in lots), 110 acres, 4 miles from City, with Orangery, etc.

INVESTMENTS, including 5 new City Cottages, £1,550, returning 8 per cent. net; 2 Houses, £725; and many others.

CALL AND SEE ME.

T. E. POWELL, LAND AGENT,

No. 2 (Basement) National Mutual Buildings, King William Street, Adelaide.

(NEXT BANK OF ADELAIDE).

TELEPHONE 1136.

land for fruit production in South Australia. Here an annual rainfall of from 20in. to 27in. is precipitated. On the spurs of the undulating hills the apple, pear, plum, apricot, and peach do well, while on the richer flats and gully lands the Zante currant vine produces enormous crops of fruit, equal in quality to the finest grown in the Grecian Islands. This district contains vast areas of land suitable for these fruits, and so great has been the demand for blocks for fruit-growing that the land values have reached a high figure. The initial cost is from £5 to £15 per acre for the unplanted soil, but the slopes and valleys lend themselves to cheap tillage, and the establishment of the orchard may be estimated to cost from £15 to £25 per acre in consequence. The road routes to the main north line of railway lead through Farrell's Flat and Mintaro, at a distance of about 2 miles, or to Saddleworth, which is from eight miles to 35 miles from different portions of the district. About 50 miles further north the Wirrabarra and Beetaloo ranges of hills possess much good fruit-growing country. Here apples, pears, grapes, figs, plums, peaches, apricots, oranges, and lemons thrive in selected spots, which are chiefly in the gullies and flats alongside the Rocky and other creeks. The rainfall here varies from 20in. to 23in, and the wet and dry seasons are well defined. Although many miles from the point touched by steamers which carry fruit

cargoes to Europe, a profitable export in apples has been entered upon from this district. The fruitgrowers in this neighborhood command a large local market, being in proximity to Port Pirie, and in direct railway communication with the great mining centre of Broken Hill.

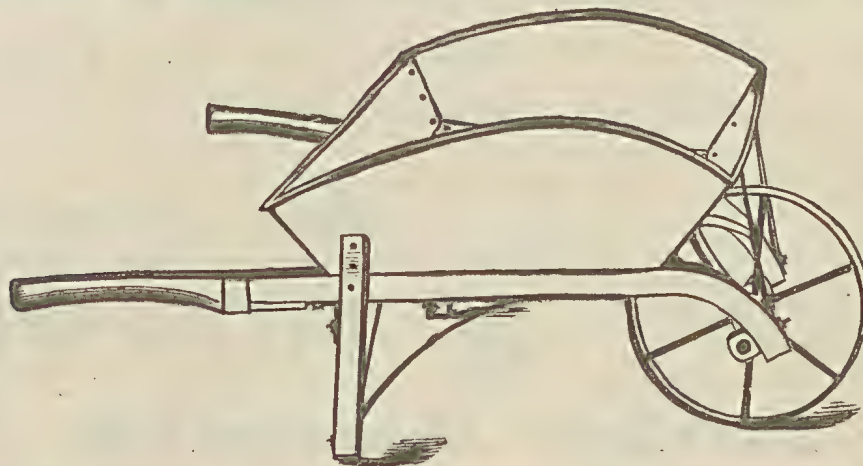
All the foregoing areas over which fruit is produced are grouped along and among ranges of hills, the elevation of which ensures more regular rainfall and cooler atmospheric conditions than are met with in the open agricultural plains. Apart from these places, however, along the valley of the Murray River are established a number of irrigation settlements largely devoted to fruit raising. Here the conditions are peculiar, and a distinct type of growth is secured under the stimulating influences of irrigation and great summer heat. After passing through many vicissitudes of fortune the inhabitants of these settlements appear to have solved the problem of what they can produce successfully, and with characteristic zeal and intelligence their energies are now being directed along these lines. After experimenting with nearly every kind of fruit they have emerged out of their difficulties with the knowledge that with their conditions the production of currants, raisins, pears for canning and drying, and citrus fruits may be carried on with much success indeed. It was from here Washington Naval oranges originated, which a leading English journal declared to be "Undoubtedly the

finest oranges which have ever entered Covent Garden markets."

To any person who contemplates emigrating from Europe, and more particularly to those who may possess a few hundred pounds capital, there is in this business an abundant field for his enterprise. To make a success the beginner must not be afraid of hard work, and should he have received some initial training in horticulture, success is assured. Our most successful fruitgrowers are men who, although starting with very limited means have, by dint of hard work and the application of keen intelligence, raised themselves to their present position of comparative affluence. There is as yet good land awaiting the skill of the planter as any now set to orchards, and the world's markets are being yearly brought into closer touch with the South Australian producer. Blessed with a climate to the evenness of which the world offers no parallel, the fruitgrower may, on a properly chosen site, have something to send to market every month in the year, thus securing a continuous income, which is such an important consideration to the man of small capital. When added to all these undeniably great natural advantages it is considered that the newcomer may at once begin with a clear knowledge of the results of the accumulated experience of upwards of half a century's work, it must be admitted that he starts equipped with all the forces which are essential to

WHEELBARROWS,

Light, Strong, and Everlasting. Unequalled for Garden, Farm, and General Use.



Made in Black or Galvanized Iron. Sizes - No. 0, $1\frac{1}{2}$ bushels; No. 1, $1\frac{1}{2}$ bushels; No. 2, $2\frac{1}{2}$ bushels.

MANUFACTURERS-

A. SIMPSON & SON,

Gawler Place and Pirie Street, Adelaide.

Makers of Field Gates, Water Barrows, Watering Cans, and all kinds of Metallic Goods for Garden Use.

success. The rest depends entirely upon himself.

A recent visitor to South Australia (a fruit salesman of nearly 50 years' experience in Covent Garden), stated he had no hesitation in saying that the South Australian apples were superior to any others he had received from Australia. This gentleman also expressed the opinion that there was almost unlimited room for expansion in our export trade.

German gardening journals state that the railway authorities at Frankfort-on-the-Main intend to afford their employees a course of instruction in the cultivation and care of fruit trees. The purposes of the instruction afforded are the cultivation of the fruit trees planted on the railway embankments, and the formation of new fruit plantations by the railway laborers.

Orchardists and horticulturalists generally recognise the great value of tobacco in any form for dealing with many of the numerous pests which attack our trees and plants. Its price and sometimes a difficulty in procuring a suitable article have considerably interfered with its general use, but now we find that tobacco stems and other refuse of the plant may be had at a price so reasonable that it is placed within the reach of all. One pound weight of the stems should be

boiled for half an hour in a quart of water. Then add water to make up for what was lost in the boiling, and the solution is ready.

A method of propagation we have seen adopted in Egypt and in one or two other countries is called "ariel layering." It is adapted only as a method of increasing woody subjects, such as camellias, oranges, mongolias, ginkgos, & where the specimens are standards, and have no shoots near the ground which can be brought down and layered in the usual way. A French writer M. Jules Charrett, writes thus:—First ring the branch to be layered below a strong bud, removing the bark for five or six millimetres during the growing season, a cicatrix then forming on the superior edge. In the autumn or spring following he arranges a non-perforated pan just below this point, which he fills with water; in this he places a well-drained pot with a little soil, the pot being slotted half way down to admit the branch, which is then bent with the bud in the angle, the extremity brought upright and in the centre. The pot is then filled up, and covered with chopped damp moss. The outer pan must be replenished with water, and the resulting growth tipped. Another plan is to have two pots, both slotted, and filled with moss kept constantly damp.

Always in Season.

"Boshter" Beer,

A Temperance Tonic, brewed from the finest hops grown, matured in our cellars.

A SPLENDID TABLE or SUPPER BEER

Cased and sent all over the State. Awarded Two First-Prizes, Adelaide. First Prize and Silver Medal, Sydney.

Co-operative Mineral
Waters Co.,
ANGAS ST., ADELAIDE.
TEL. 76.

There is Nothing like Leather.

FOR A GOOD HONEST WEARING
BOOT, GO TO THE

CENTRAL BOOT PALACE

77 HINDLEY STREET, ADELAIDE
(Opposite Max Swift's).

Where the man himself makes and repairs
Boots with the best of material.

Fit and Style Guaranteed. A trial
solicited.

The Cheapest House in town for the
durable nature of work as guaranteed.

All Readers of the "AUSTRALIAN GARDENER" when in the city should not fail to call at the
"ALEXANDRA" TEA ROOMS,

41 RUNDLE STREET, right opposite Messrs. Chas. Birks & Co.,

Where Midday Luncheons and Afternoon Teas are served to all in the most up-to-date and efficient style, and at the lowest possible charge. Please note this, and give the Alexandra a call.

MRS. J. C. GRIFFIN, Proprietress.

STOTT & HOARE.

Sole Agents

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TYPEWRITER.

The new Billing and Invoicing Typewriter will make out Invoice, Day Book, and Cart Notes at ONE writing.

SECOND-HAND TYPEWRITERS of all makes for sale from £5. Cash or Easy Terms.

Copying.—We undertake copying of all descriptions. Specifications, Contracts, Price Lists, and Circular Letters. 100 copies Circular, 5s. ; 50 copies, 3s.

Alexandra Chambers, 27 Grenfell Street, Adelaide

Phone 1030.

If you want to buy or sell a Farm. If you want to buy or sell an Orchard, a Vineyard, a House or Building Sites. If you want to build a House or Borrow Money. If you want to buy or sell Mining and other Shares, or want any Commission Business attended to, CALL ON

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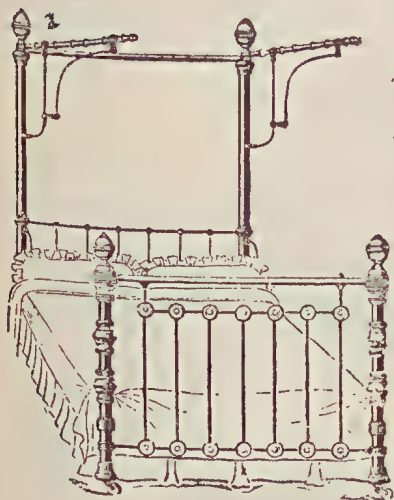
CURRIE STREET, next Bank of Adelaide,

Architects and Commission Agents,

Or Ring up Telephone 1443.

PREMIER Furnishing Warehouse. MACROW'S.

114 RUNDLE STREET, ADELAIDE, opposite Arcade.



The Firm that treats you fair, are prepared to let you have a choice of the Best Goods for a small deposit and additional insignificant weekly payments.

Terms arranged to suit the convenience of all customers.

WHAT WE ARE PARTICULARLY NOTED FOR—

The splendid and efficient manner in which we pack and forward our goods, irrespective of the value or quantity.

The sterling value of the goods we forward to country clients.

Also that we do not mind what trouble we are put to so long as satisfaction is given to the purchaser.

And last, but not least, that we stock only the Best Makers' Goods.

CASH OR TERMS.

Spring

Laden with glory and light you come
With the leaf, the bloom, and the butterfly's wing.

Making our earth a fairy home,
The primroses glitter, the violets peep,
And zephyr is feasting on flowerets' bloom;

Arouse ye sluggards, awake and sing
The chorus of welcome to beautiful Spring.

Spring, Spring, beautiful Spring.
Beautiful, beautiful, beautiful Spring.
Spring, Spring, beautiful Spring.

A useful cement for fastening knives, etc., in their handles is made in this way—Take powdered resin, and mix with it a small quantity of powdered chalk, whiting, or slaked lime. Fill the hole in the handle with this mixture, heat the tang of the knife or fork, and thrust it into the cavity. When cold it will be securely fastened. A very firm cement is also made of four parts of resin, one of beeswax, into which when melted one part of fine brickdust is stirred. It adheres with great firmness.

If pansies really stand for thoughts,
As learned people say,

I wonder what ours think about,
Throughout the summer's day.

Do you suppose about the rose,
And while she holds her head

So high above the other flowers
Who share the centre bed?

Or do they think about the birds

And butterflies so bright,

And envy them their glancing wings,

And swift and happy flight?

If so, perhaps each pansy then

Says, softly, "I shall try,

Someday, to slip from this dull stalk,

And be a butterfly."

Here is the motto that should be adopted by the Adelaide Flower Growers' Association:—

The world is full of roses and the roses full of dew,

And the dew is full of heavenly love that drips for me and you.

The butter-shipping season will open at a later date than for a number of years past in Australia, and at present only trifling quantities are being shipped from Brisbane for London.

NEWMARKET

Hairdressing Saloon,

281 RUNDLE STREET.

GEO. K. A. GOSLIN, Manager

(Late with R. McCubbin)

Under new management. Completely renovated. No waiting. Cleanliness and civility maintained.

Best Brands of Tobacco, Cigars, and Cigarettes stocked. A trial solicited.

All papers. Agent for the 'Australian Gardener.'

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"Australian Gardener" Office,
Corner Pirie & Wyatt Sts.]

Send us along a trial order.

DAVIS, BROWNE & CO.,

Late Swift & Co.,

Have the **BEST DISPLAY** in the State to choose from.

Bedroom,
Dining Room,
Drawing Room,
AND
Kitchen
Furniture.

**CASH
OR
TERMS.**



Carpets,
Linoleums,
Curtains,
Quilts,
Table Covers,
Blankets,
Seehing,
Direct from
the Maker.

Upholstered Suites in our New Showroom defy description

ADELAIDE'S BEST FURNISHERS.

46, 74, 76 HINDLEY STREET, ADELAIDE.



Business Notices.

MESSRS SHEARER AND GURR.

Messrs Shearer and Gurr, tailors, have been established for upwards of three-and-a-half years, and their business is situated off one of the main streets of Adelaide—namely, Gawler Place. They are a most enterprising firm and carry a very large stock of all the latest suitings, vestings, trouserings, and every other line of goods that helps to make a man neatly dressed for any occasion whatever. They employ a very large staff of first-class hands, and are thus able to turn out orders entrusted to them equal to any other firm of tailors in Adelaide. All their workrooms are under the capable supervision of Mr Shearer, who is head cutter for the establishment, and has an experience in this highly important part of the business for a period of 30 years. This in itself is a guarantee of his efficiency as a cutter. Mr Shearer makes it a provision to have nothing but the first-class article completed, and gives every attention to all orders leaving the establishment. The firm state that during the last three-and-a-half years they have turned out more

than 2000 suits and announce with pleasure that they have received no complaints of any importance. Mr Gurr, the other popular partner, is the "Bagman of the Roads," and attends to the travelling himself, giving personal attention to the firm's numerous clients in all parts of the country north and south of Adelaide. He makes trips to the country six times a year, with all the latest goods, and is warmly welcomed on his return trip to any place. Thus it is, with the combined ability of one partner as head cutter and the other as an expert traveller, wonderful success has been achieved. The business of the firm is conducted on strict lines, and fit and workmanship in every instance are guaranteed.

—:O:—

THE IDEAL STUDIO.—MR. JOHN DUNN, PROPRIETOR.

In our advertising columns we would again draw attention to the special offer given by The Ideal Studio. Mr John Dunn, the proprietor, who last September presented to each customer a photograph and handsome art frame, has again decided to offer another free gift during show time. On this occasion he will

present to each customer a handsome enlargement absolutely free. This is an extra gift, independent of the enlargement included with each dozen; and is offered solely to advertise the studio. During last September the special offer was responded to with readiness, and over 300 frames were given away. Mr Dunn is confident that the additional enlargement given away on this occasion will prove even a greater attraction than the art frames. The photographs are most artistically finished, and compare with the work of any other studio in the city.

:O:

"BOSHTER" BEER.

It is always pleasing to note the success of South Australian products in other States. The Co-operative Mineral Waters' Company, Angas street, in addition to securing the first prize at Adelaide have been awarded first prize and silver medal at the Sydney Royal Easter Exhibition, 1908, and the Champion Prize at the Melbourne Royal Agricultural Wine Show in August, 1908, for their well-known "Boshter Beer."

BUY METTERS' WINDMILLS.

The Cheapest, Strongest, and Best.

The Most Up-to-date and Serviceable.

Spare Parts always in Store.

If any of your Friends are using METTERS' MILLS, they will advise you to have no other make.

A Guarantee given with every Mill.

Repair Parts supplied Free of Charge.

Write for Complete List, stating your requirements. Catalogues Free on application.

COOKING STOVES AND RANGES

Positively the strongest manufactured in the States.

Hundreds of Patterns to choose from.

Every Stove Guaranteed to give Satisfaction.

Please call and inspect our Stock, or send for our Complete Catalogue, which we will forward Post Free.

METTERS LIMITED,
Showrooms and Offices : 142 Rundle Street, Adelaide,
Also Sydney and Perth.

October Number of

1908

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry),

CONTAINS—

EDITORIAL.

The Vegetable Garden—
Operations for the Month

Flower Garden—
Notes for the Month
About Roses
Turban Ranunculus
New Miniature Sunflower

The Farm—
Irrigation in South Australia

Diseases of the Skin
South Australian Minor Industries
Miscellaneous

The Dairy—
The Profitable Cow
Mechanical Cow Milker
Testing Individual Cows
Interesting Notes
Importance of Clean Milk
&c., &c., &c.

The Orchard—
Fruit Trees
Fruit in Bygone Days

The Poultry Yard—
Diseases of Fowls
Poultry in South Australia
Poultry Brevities

BUSINESS NOTICES

ANSWERS TO CORRESPONDENTS.

EDITORIAL.

As was predicted by the "Australian Gardener," the Royal Show this year was the best exhibition of the kind that has been held in Adelaide. The Agricultural Society, which has an extremely large membership, is to be congratulated on the fact that year after year it makes its great show worthy of the State, and of the producing interests it represents. The success of the show is evidence of the spirited management of the practical agriculturalists, and keen business men, and the energy of an able secretary in the person of Mr J. Cresswell. The Royal Society is undoubtedly doing a most important work in encouraging rural industry, and raising the standard of production ever higher by giving an opportunity to producers to ascertain what is best, thus raising the emulation by increasing their knowledge. The welfare of the whole State is intimately bound up with the success of the rural producer, and that success is every year becoming dependent more and more upon knowledge. Hence the great desirability that exists of extending to the Society the assistance and support its

object merits. There is one matter, however, in the interests of all concerned, that should be again taken into consideration, and that is the advisableness of changing the show grounds for a more suitable site. We may say at once that the Exhibition Grounds are not all that they should be. In fact they fall far short of requirements and place the exhibitors at a decided disadvantage. Their unsuitability is recognised by the public generally, and even many members of the Society have expressed themselves in favor of a better site being obtained. If the Society desires, as no doubt it does, to extend the popularity of the annual September show and increase its usefulness, a move should be made without delay to acquire a more up-to-date show ground. We have seen better show grounds in the country districts of Victoria and other States of the Commonwealth than those on which the Royal Society each year holds its important exhibitions.

* * * *

THE abundant rains that fell during the month of September, with intervals of genial sunshine, have practically assured a phenomenal season of prosperity for the agriculturalists in South Australia.

Should the weather keep fine for a few weeks, and there is then another rainfall, this season will be the best that the State has ever experienced. We hope it may be so.

Bagot, Shakes, & Lewis, Ltd.,

STOCK AND STATION AGENTS.

Wool, Skin and Hide Brokers,
Auctioneers and Valuers,
Licensed Land Brokers, Loan
And Estate Agents,

Land Department have for Sale—
Some Splendid Agricultural, Grazing
and Horticultural Lands in all parts
of South Australia.

Also in Western Australia, New South
Wales, and other States.

Properties sold privately or by auction
in all parts of the State of South
Australia.

Large Estates disposed of for Closer
Settlement.

Advice given as to Best Means of
Realisation.

Plans Prepared. Valuations Made.
Special attention given to City and
Suburban House and Property business.
Persons wanting Houses cannot do
better than apply for particulars to
Manager, Land Department, 18 King
William Street, Adelaide.

MALCOLM REID & Co.

General Furnishers and Ironmongers.

Write for our Illustrated Catalogue, sent free and post paid to any address. We guarantee all Our Goods to be made of Seasoned Timber and by First-class Tradesmen, and if the goods are not satisfactory we take them back and pay carriage both ways. All Goods delivered free at Railway Station or Boat.

FRANKLIN STREET, near Post Office, ADELAIDE.

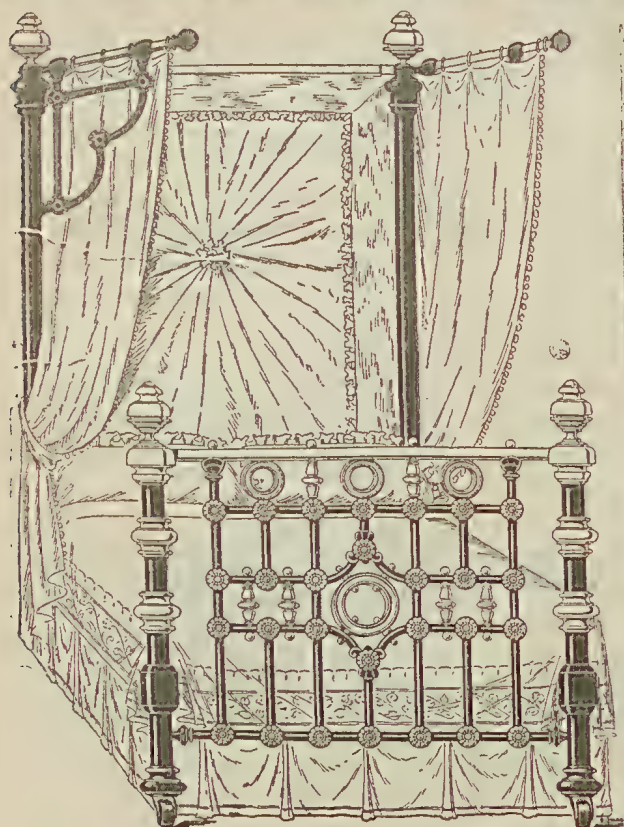


We furnish your Dining Room, as shown, for

£12 19s. 6d.,

consisting of the following:—

- 1 Sideboard, with 3 bevelled mirrors
- 4 High-backed Chairs,
- 2 Arm Chairs,
- 1 Couch and Cushions,
- 1 Bamboo Table,
- 1 5-ft. x 3-ft. Table,
- 1 Occasional Table,
- 1 Overmantle,
- 1 Hearthrug,
- 8 yards Floorcloth,
- 1 Fender and Fireirons,
- 1 Curtain Pole.



Full size PARISIAN BEDSTEAD, as shown, 14-inch pillars, Nickel or Brass Mounted, £3 10s.

Lyrphone Phonograph

Price,



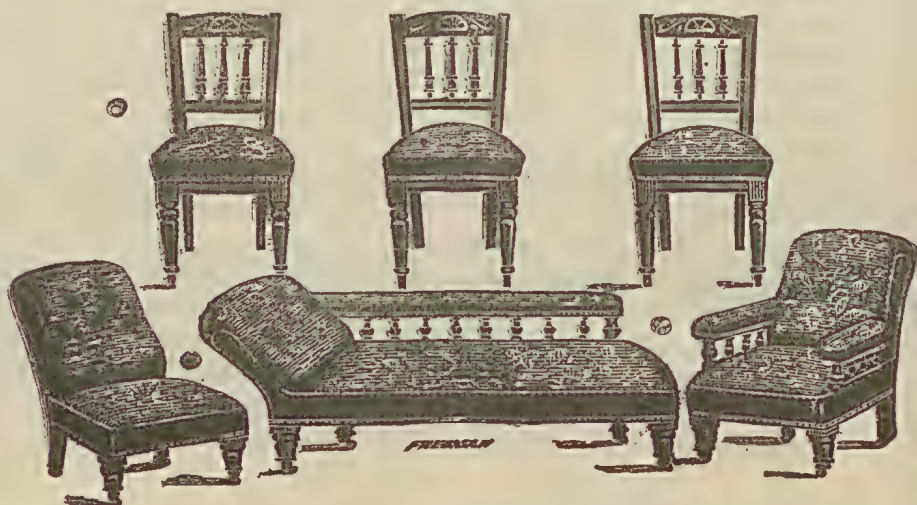
Postage extra, 2s., securely packed

The most perfect reproducing machine ever placed on the market for so low a price. Uses the ordinary standard size gold moulded records.

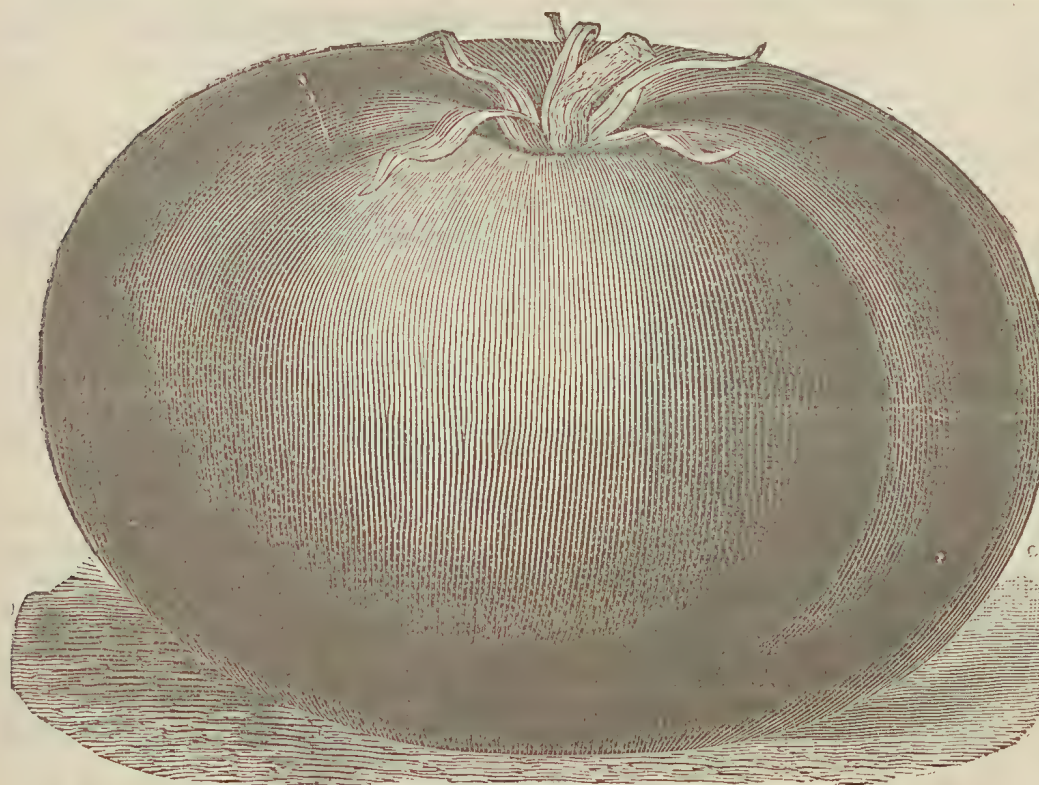
The SILENT MOTOR is simple, yet strong, the spring itself being of finest quality tempered steel. The governor, with latest pattern regulator, has complete control of the speed, ensuring a reproduction PERFECTLY IN TIME.

The nickel-plated Reproducer is fitted with a superior quality mica diaphragm, the same as used on all high class phonographs. The nickel-plated horn is of new design, with flaring bell, greatly improving the tone. It is fitted with safety support, avoiding damage to Reproducer through falling off record.

RECORDS.—We supply gold-mounted records: Bands, vocal, violin, bagpipes, bells, piccolo, etc., at 15s. per dozen. Postage extra, 2s. per dozen. Latest Lists post free.



6-piece DRAWING ROOM SUITE, as shown, beautifully upholstered, £4 15s. and £5 15s.



VOLUNTEER TOMATO.

The Vegetable Garden.

Operations for the Month

Beans, French or Kidney Dwarfs may be sown now in nearly all parts of the State. They will thrive in almost any kind of soil, provided the soil be thoroughly drained and well enriched with manures that do not contain much nitrogen.

Beans, Kidney, Runners—These may be managed in the same manner as the dwarfs, but the seeds had better be sown wider apart. They will need the support of poles, or anything else that will support them. For general purposes in small gardens it will be as well to grow only the dwarf varieties.

Bean, Lima—If seeds were not sown last month this should be done immediately. There is a dwarf as well as a tall growing variety. The latter bears the largest beans.

Beet, Red—Sow a little seed of this vegetable in numerous rows about 18 inches apart. When the seeds come

up and plants are strong, thin them out gradually until you have strong plants standing about 9 inches from each other. Small clean medium-sized beets are to be preferred to those of a larger size. Badly-shaped and forked roots should be condemned.

Beet, Silver is used for leaves only. Sow a little seed in heavily-manured ground. A few plants will be sufficient for an ordinary-sized family.

Cabbage—Sow a little seed in drills in a seed-bed. Plant out any strong plants that may be available, and do this with care.

Cauliflower—Sow a little seed and manage the plants as advised for the cabbage. Cultivate the ground with a hoe between the rows of cauliflowers as well as cabbage, and all members of the same class of vegetables.

Capsicum or Chilli—The seed may now be sown in a box or a pot, or in a seed-bed, and the young capsicums afterwards planted out about 3 feet apart.

Celery—Prepare some ground by heavily manuring and well digging, and when some of the best seedlings are ready transplant them from the seed-bed. Celery requires plenty of water, but the ground should be well drained. When grown on the flat the stalks may be blanched or made white by placing boards on each side, or anything else that will keep away the light.

Cucumber—Prepare a bed by digging the ground deep, by draining it well, and by applying a good dressing of manure, unless the soil is rich enough without it, as may be the case on some farms. Sow six or eight seeds within a few inches of each other, in a clump, as it were; and about 6 feet distant put in another clump and so on until your bed is planted. When the seeds come up and the plants are strong, thin out all but two or at most three plants. If necessary, those you thin out can be moved carefully and in another bed, or they may be required to fill up misses. Water the plants before they are moved, and again when planted.

Cress and Mustard—The seeds of these salad plants are generally sown together. They are wholesome and useful vegetables to eat in a green state, and a few seeds should be sown occasionally to keep up a supply. Use a good dressing of rotted manure and mix it well up. Mustard and cress are about the easiest of vegetables to grow.

Carrot—Sow a few rows or drills about 1 foot or 18 inches apart.

Egg Plant—Sow in the same manner as the above and afterwards transplant. This vegetable requires a very warm situation. It is questionable whether more than a few plants of it are worth growing. The fruit is very ornamental.

Kohl rabi, or Turnip-Rooted Cabbage—A few plants are worth trying. It is not advisable to grow it to any extent until it is ascertained that the family cares for it. Sow and plant as for cabbage.

Leek—Sow seed and plant out. Water often, and apply abundance of liquid manure.

Lettuce—The best kind for this time of the year to sow is one of the Drumhead

class. Manure well and use liquid manure frequently to keep the plants growing fast. Sow the seeds in a seed-bed, and when moving the plants be particularly careful not to break the roots.

Melon, Rock and Water—Prepare the ground as recommended for the cucumber and sow the seed in the same way. The water-melons should be sown wider apart than the cucumber or rock-melons.

Okra—Plant out from the seed-bed any young plants that are strong enough, 2 or 3 feet apart. Sow a little seed.

Onion—Sow a little seed. Any plants that are growing should be kept carefully weeded, and spread a dressing of soot and salt about them. Half soot and half salt.

The parsnip—Sow a little seed in rows about 2 feet apart. The ground should be dug as deep as possible.

The peas—A row or two may be sown; The peas will succeed best during the summer, in the coolest part of the State.

The potato—A few rows of medium-sized whole potatoes should be planted. Use plenty of manure unless the soil of the garden is sufficiently rich without it.

The pumpkin—Sow a few seeds of the ironbark variety if it can be obtained. You should prepare the ground well and use the manure liberally. Sow the seeds in clumps about 8 feet apart, and thin out the plants to two or three when they are strong enough.



EARLY SCARLET WHITE-TIPPED TURNIP RADISH.



LONG BLACK SPANISH RADISH.

Radish—A few radishes well grown are always useful. It would be as well not to sow too much seed at a time as the roots soon deteriorate. Apply well-rotted manure, and dig up the soil well and make it fine. Sow in rows, and thin out the plants as soon as the second leaves appear.

Rosalla—This is a kind of Hibiscus which will succeed only in the warmest parts of the State. The portion of the plant used is the flower calyx. It makes an excellent and most beautiful colored preserve. The seeds should be sown in pots or boxes, and the plants afterwards transplanted to well manured ground.

Rhubarb—A little seed may be sown in a box or seed-pan, but it is rather late in the season.

Tomato—You should plant out largely from the seed-bed, or sow seeds if this has not yet been done. Make some kind of support for the plants to be tied to so as to keep them off the ground as much as possible. There is no end to the varieties of tomatoes, yellow and red, large and small. The medium-sized and the small are generally the best flavored,

and are on that account to be preferred to the large and handsome kinds. No vegetable garden should be without a few plants.

Turnip—A little seed may be sown on well-manured ground in drills.

Vegetable-marrow and Squash—Sow seeds on ground that should be prepared in the same way as that recommended for cucumbers.

WE WANT YOU TO KNOW

that We Keep a Good Supply of Books on the Farm & Garden

by the Most Experienced Writers,
As well as a good range of the best

General Literature.

Perfection Bibles, Text Cards,
Autograph and Birthday
Books, Stationery, &c., &c.

Your Orders will receive Prompt
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Mercers,

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**FARMERS, GRAZIERS,
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VALUABLE FARMING PROPERTIES
at

Redbanks, and Lower Light, 2964 Acres,
for Private Sale, on account Mr. L. Conrad
Immediate possession, with or without crop
BEST FATTENING and WHEAT-
GROWING COUNTRY, Highly
Manured, and in Excellent Heart.

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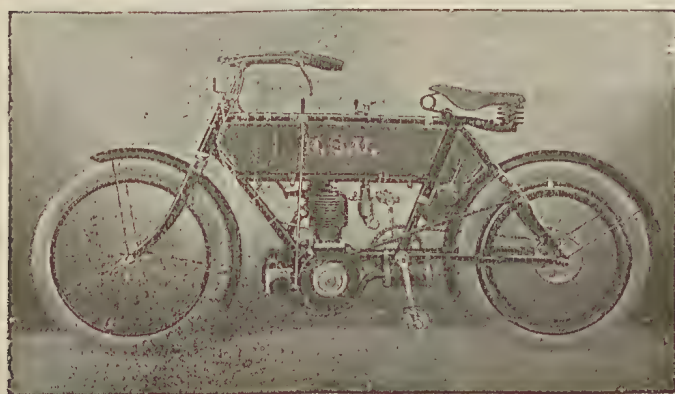
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This Contest is the Only Motor Cycle Engine Test that has been held in South Australia this year. We can prove this

EYES & CROWLE, 125 and 127 Pirie St., Adelaide.



MAMMOTH SWEET WILLIAM, Holborn Glory.

The Flower Garden.

Notes for the Month.

During the month of October most of the roses and many other plants are at their best; but, unfortunately, it frequently happens that strong north-north-westerly hot winds blow severely and destroy the flowers. It is impossible to prevent this, unless the garden be protected by hedges, high paling fences, or buildings, but even then the hot air penetrates almost everywhere. When the rose flowers have thus been destroyed they should be cut off, and it will pro-

duce flowers without any care; but in order to obtain flowers of good quality and up to the mark for exhibition purposes, a great deal of care and constant attention is necessary. Plants can be obtained during the month, and planted out in the open, either among other flowering plants or else in a border by themselves, where they can be specially attended to. This latter practice is that generally adopted by those who cultivate chrysanthemums, therefore they should be constantly searched for and killed.

Many varieties of beautiful bulbs will flower during this month if the weather

has been favorable. Liliums of varieties, gladiolus, and others should be making one growth and will flower later on. Tie up the leaves of bulbs such as daffodils, etc. to keep them out of the way and tidy, but do not cut them off, just let them wither away, for they are necessary to elaborate material for next season's flowers and leaves.

In the semi-tropical coastal districts the gardens can be beautified by the addition of palms and tree ferns. They can be planted out during the month if the weather be not too dry. The Lord Howe Island palms, Kentias or Howeas are remarkably beautiful and easily obtainable. The fan-leaved palms, such as our own cabbage-tree, chamoerops of kinds, livistonas, and sabals are exceedingly handsome when well grown.

Seedlings of tender annuals and perennials may now be planted out in the open, of such plants as cockscombs, balsams, portulacas, and sunflowers.

Edgings of grass, box, etc., will grow very quickly now, therefore they should, be frequently cut and kept trim. Edgings and hedges badly kept are great eyesores.



DOUBLE TIGER LILY.

V I C E R

Serves



FLAKE CARNATION.

Carnations will need some attention at this season of the year, if the best possible results are desired, from a decorative point of view. Where an excessive number of shoots are present on old plants, these should be thinned out, leaving about six well placed leaders; also remove some of the weekly laterals or side growths on the selected shoots, retaining those that are strongest and occur nearest the base of the plants. The plants should be staked or supported as being of a brittle nature they are likely to suffer from the effect of wind. The best method is to make a circle of

wire netting, about 18 inches or 2ft in height, and of sufficient diameter to enable the whole of the plant to be trained within it. A stake should be threaded through the ends of the netting to make the circle, and another at the opposite side, and each stake securely fixed in the soil. This is the best means of support for the flower shoots, and is also a barrier against rabbits, which if present, will attack carnations in preference to any other plant. An occasional watering with liquid manure made from guano or some such manure and soot, will benefit the plants greatly, adding to the size and number of the blooms. Soot is a valuable material to a carnation grower, as, in addition to its value as a manure, it keeps mealy bugs and other pests from attacking plants.



NEW MINIATURE SUNFLOWERS,

Specially remarkable for their rich profusion of flowers, which are borne on long, erect stalks above the dark green foliage.

A great acquisition for cut flowers.



TURBAN RANUNCULUS,

Peony-formed flowers, whose vivid colors are very attractive. Very effective in beds and masses.



PICOTEE.

The Bouvardia is one of the most useful dwarf plants for border decoration or for cutting, blooming freely during summer and autumn. The original types (natives of central America), of which *B. leintha*, *splendens*, and *triphyllo* are still found in many gardens were all red flowered; but garden hybrids have been produced much superior to those in form and size, and varied in color. They are specially suitable for small gardens, but should not be planted close to large shrubs or trees. A loamy soil suits them well, and with a fair supply of water during dry, hot weather they are sure to give satisfaction. The plants will be put back by frost in winter unless sheltered, but will break away into growth again in the spring.

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 Pearl millet
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 Ice Cream, Rattlesnake, Etc.

Ninety-day Maize

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Dwarf Essex Rape

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MANGEL—Long, Red, Yellow, Globe,
 Yellow Mammoth

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White Mustard

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Swedes, Carrots

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NIQUAS, 1s 6d tin

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Kilemquick, 1s pint tin, also $\frac{1}{2}$, 1, and 5 gal. tins

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Gishurst Compound, 1s 6d box

Ammon. Copper Carb. Solution for Apricot Scab and Curl Leaf on Peach, 1s 3d bottle

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APPLES	} Best Cooking and Dessert Sorts.
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PEACHES, very early, early, medium, and late.

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PLUMS.

JAPANESE PLUMS.

GRAPE VINES.

GOOSEBERRIES.

FIGS.

APRICOTS.

LOQUATS.

CHERRIES.



JAPANESE PERSIMMONS.

Several Good Sorts,

1/6 each.

Orange & Lemon Trees.

GUAVAS.

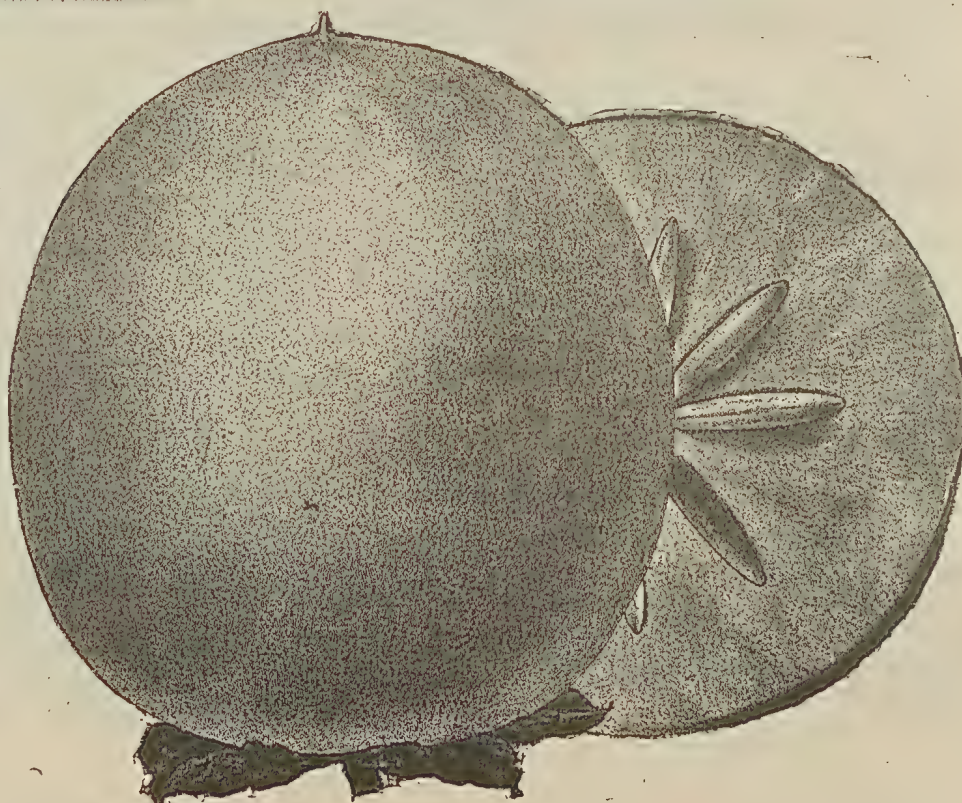
FILBERTS.

COB NUTS.

HAZEL NUTS.

PECAN NUTS.

WALNUTS.





About Roses.

HINTS AS TO CULTURE.

When the plants arrive they should be conveyed to a shed or sheltered place and unpacked, and the roots and tops watered; if the ground is ready plant them at once, taking care not to let them be exposed to drying winds when being planted. If the weather be wet or frosty, open a trench in a sheltered spot and lay the roots of the plant in, and cover them well with earth until the weather is fine and the ground in a fit condition to plant them in.

A place apart from other flowers should be assigned to them, if possible, sheltered from high winds, but open and not surrounded by trees, as closeness is very apt

to mildew; where they cannot have a place to themselves, any part of the garden best fulfilling these conditions will answer.

Before planting a new bed the soil should be well trenched, and plenty of good rotten manure mixed in. Great care should be taken not to plant too deeply, or let the manure touch the bare roots. When the hole is filled in tread well, and if standards they should be securely staked.

Roses are feeders, and will take almost any quantity of manure, mulch liberally during summer; keeping mulch fully three inches from stems of trees.

When coming into bloom, if the weather be dry, give a good drenching twice or three times a week; if greater size be required, liquid manure may be

used. Established roses are best not watered during November, December, January, and early part of February, when they should be summer pruned, manured, and watered as required. When watering always hose the foliage thoroughly.

PRUNING.

Hybrid Perpetuals.

During July cut out all wood over two years old and all weakly shoots. Weak-growing kinds may be left longer. Cut to an eye that points downward, so as to keep the inside of the plant open.

Everblooming (Teas, Hybrid Teas, Hybrid Chinas).

During July cut out all dead wood, weakly shoots, and exhausted wood; leaving only the shoots intended to form the bush, which shorten back to say four or five eyes, never allowing centre of bush to become crowded.

During February summer pruning should be carried out, by removing some of the weak and worn-out wood, and shortening any remaining shoots as required, but not so severe as in winter pruning.

Climbing Roses.

Where it is intended to keep these trim and neat, it will be necessary to prune after the first flowering is over, and training up younger wood in its place. They should be liberally watered and manured all the summer, always hosing the foliage thoroughly when watering. Tie up shoots as required.

Pests.

Green and Brown Fly (Apis) are the first to trouble the young growth and flower buds of roses in the spring, and should be syringed or sprayed off a few times with Kilemquick, Niquas, Gishurst Compound, or other preparations recommended for their destruction.

Mildew is next to make its appearance on the young growth, and is checked by dusting sulphur over and under the foliage early in the morning while the moistening dew is still upon it—(otherwise damp the foliage first). This might be prevented to some extent by applying the sulphur before it makes its appearance.



LADY MARY FITZWILLIAM, delicate flesh color. Large and full.



MILDRED GRANT, pale rosy white on a strong firm stalk, fine form, with rough leaves and thorns. Pale rosy white.



La France, beautiful bright lilac, with rosy centre. Large and full, and particularly sweet-scented.



Mrs. Edward Mawley, bright carmine-pink, shaded salmon. Of great substance.



NOTICE TO FRUIT AND PLANT DEALERS.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.
2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.
3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.
4. No plants other than those growing in pots having soil attached to their roots will be admitted.
5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.
6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.
7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.
8. No plants or portions thereof will be admitted from any State or country where phyloxera exists unless accompanied by a declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in the exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phyloxera exists or has existed in the plantation from which the plants originated.
9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.
10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace.

L. O'LOUGHLIN, Minister of Agriculture.

Government Poultry Station.

Agricultural College, Roseworthy.

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Black Orpington, Buff Orpington, and Indian Game—Eggs, 15s., Chickens, 30s. a dozen.
Silver Wyandottes, Faverolles, Minorca, White Wyandotte, White Leghorn, Old English Game—Eggs, 10s., Chickens, 21s. a dozen.
Table Birds—Eggs from various crosses, 3s. when available.

Settings will be 15 eggs and no replacements.

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The stock is of first-class quality and vigorous.

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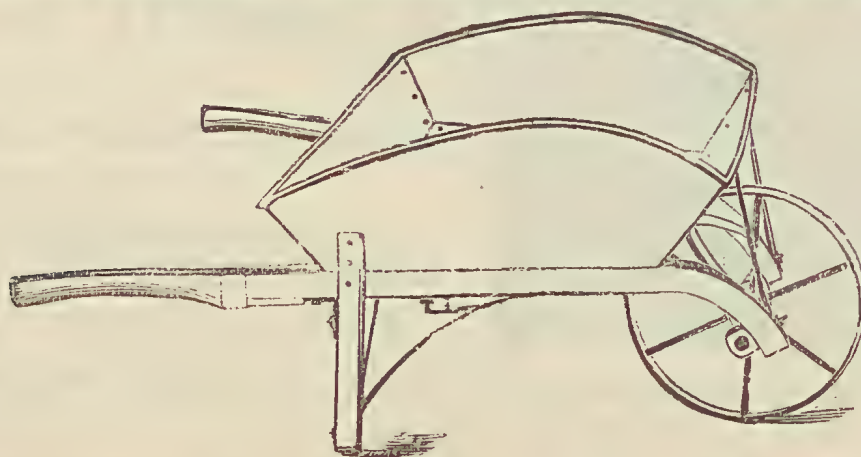
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The Orchard.

Fruit Trees.

GRAFTING PROCESS OUTLINED.

The subject of grafting fruit trees is one that is old, yet ever new, with the return of spring and the season for plant growth. Grafting is the process of inserting a piece of plant, usually a bud or twig, in another, so that it will grow. It is a necessary practice with nearly all orchard fruits. The plant on which the grafting is done is termed the stock. The part inserted into the stock is called the scion. The essential principle in grafting is to bring the cambium layer (growing tissue between the bark and wood) of the scion and stock in close contact with each other, and to keep them there until they grow together. There are various methods of grafting, but those mostly followed may be classified as (1) budding and (2) scion grafting.

THE PROCESS OF BUDDING.

Budding consists in inserting a single bud under the bark of the stock. It is practically more especially with small stocks only one or two years old. Budding is usually performed when the bark on the stock is loose and will peel. It may also be done in the spring. One-year-old nursery trees are budded two to three inches above the ground. If budded in the spring the buds are taken from twigs of the previous season's growth. If full budded, from the growing twigs of the season. A T-like cut is made through the bark of the stock; the bark is then slightly lifted near the top

of the cut, then a little piece of bark containing the bud is inserted and pressed down, so that it is held firmly in place. The bud is then held firmly in its place with raffia, a cheap commercial tying material, or some soft yarn. No wax or other covering material is used.

SCION GRAFTING.

There are a number of ways of uniting scion and stock, but the more common are the cleft graft and the wedge or tongue graft. Cleft grafting is practised with rather large branches, and is done early in the spring. The scions are taken from the shoots of the previous year's growth, and generally consist of three buds. These may be prepared some time previously, tied in bundles, and labelled and kept stored in some cool place to keep them perfectly dormant. The scion should be cut wedge-shaped, a little thicker on the outside, so that the pressure of the cleft will hold the cambium layers of stock and scion in close contact. Two scions are usually set in each stock, with the lower bud of the scion near the top of the wedge,

This is commonly employed in grafting seedling apple roots with improved varieties, and with other small stocks. The scion and stock in whip grafting should be approximately the same size. In root whip grafting the parts are held firmly in place by a few wraps of cotton yarn drawn through melted wax and wound up on a spool. In root grafting with apples thirty-one-year old is taken up in the fall and stored in a cellar where it will keep moist. Some time during the winter months these roots may be cut in two or three pieces, and each piece grafted with a scion. These root grafts are then tied in bundles and packed in moist earth until spring, when they are set in nursery row.

Grafting wax is made by melting together beeswax, tallow, and resin. A good formula for outdoor use is one pound of tallow, two pounds of beeswax, and four pounds of resin. The melted mixture should be poured into a pail of water and pulled with greased hands until it becomes light colored and grains.

It may then be put away in oiled paper and will keep indefinitely. The warmth of the hands will be sufficient to soften it for use in the orchard. The hands must be greased to prevent it from sticking to them. The wounds should be covered airtight with the wax.

Whip or tongue grafting is, on the whole, the best and easiest mode of grafting, and the one most extensively employed for young trees in this country. It is represented at figure A, where 1 is

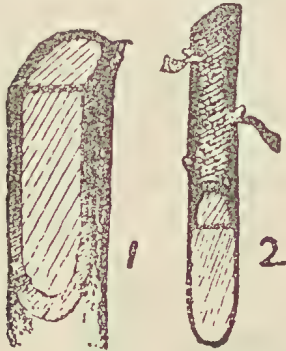


A — Whip or Tongue Grafting.

the stock and 2 the scion. It will be readily understood that the bark of the stock, because older, is thicker than that of the scion, consequently if, as ought to be the case, equal surfaces of the wood are exposed, the cut surface of the scion would not completely cover that of the stock, nor would this ever be the case, except when the barks of both stock and scion are of equal thickness. In proceeding to operate, cut the top of the stock in a sloping direction, as shown in the figure, terminating, if possible, above a bud. Then take the scion and cut it sloping and thin towards the end; next enter the knife and cut a thin tongue upwards, as shown in the figure. The scion is now prepared. Then proceeding to the stock, cut a slice upwards, so that the surface of the wood shall be as nearly as possible a counterpart of the exposed wood of the scion. In the upper part of the cut make a notch to receive the tongue of the scion; this notch should be kept open with the point of the knife while the scion is being inserted. The inner bark of the scion and stock should be placed in contact, the parts secured by tying with matting or other

substances, to exclude the air and rain, then the operation is complete.

Cleft grafting is represented in figure B, where 1 is the stock and 2 is the scion.



B—Cleft Grafting.

This is sometimes called triangular notch-grafting. Instead of splitting the stock a triangular notch is cut in the side, and in that the scion is fitted, so that the inner barks correspond. The scion is kept in position by tying matting or other material round it and the stock. It is then surrounded with clay, grafting wax, or other substances to exclude the air and rain, and the operation is complete.

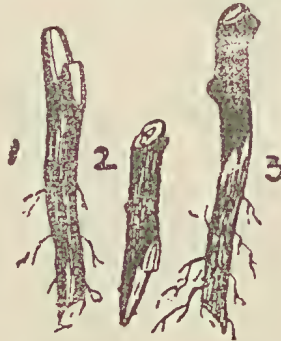
One way of root grafting is represented at figure C, where 1 is the scion and 2 is the root. There are other ways of root grafting, the tongue or whip graft being largely practised. See figure D, 1, 2, and



C—Root Grafting.

3, where 1 represents the root, 2 the scion, and 3 the graft complete. The scion should be tied, clayed, etc., as in those above referred to. Crown or bark grafting is represented at figure E, where 1 is the stock and 2 is the scion. This mode of grafting is easily performed by anyone. The head of the stock is cut

horizontally, and a slit where the scion is to be inserted is made just through the inner bark. The lower end of the scion is cut sloping as in whip grafting. A



D—Root Grafting.

piece of wood, bone, or ivory, in shape somewhat resembling the thin end of the scion, is introduced at the top of the slit between the alburnum and the inner bark so that the thinned end of the scion may be entered without being bruised. The edges of the bark on each side are then brought close to the scion, and the whole is bound with matting and clayed. If so desired three or four more scions can be put into the head of a stock if it is a large one. On the whole, crown grafting is not so good as whip or tongue grafting, but it answers well for working superior varieties on such established trees as are not fruiting satisfactorily. Crown grafts are very liable to be blown out if care be not taken to cut the growths back, and support them in some way whilst they are young.

Saddle-grafting is sometimes practised (see Fig. F, where 1 represents the stock and 2 the scion). It cannot be satisfac-



E—Crown, or Bark Grafting.

torily carried out, however, unless the stock and scion are of nearly equal thick-

ness. The stock is cut sloping on both sides like a wedge. The scion is split up the centre, and each half is thinned to make it astride the wedge-like end of the stock. The inner bark of the scion and stock having been made to coincide as nearly as possible the parts should be secured by a ligature, and covered with some grating composition, then the operation is complete.



G—A Pyramidal Pear Tree Regrafted.

Fruit in Bygone Days.

Fruit was very rare in England in the reign of King Henry VII. Apples were not less than one or two shillings each; a red rose, two shillings; and a man and woman received 8/4 for a small quantity of strawberries. It was in about 1547 that apricots and artichokes were first cultivated. The currant came from Zante, and was planted in England in 1533. The pear, peach, apricot, and quince were respectively brought into Europe from Epirus, Carthage, Armenia, and Syria, and by degrees into England. Cherries came from Rome in 55.

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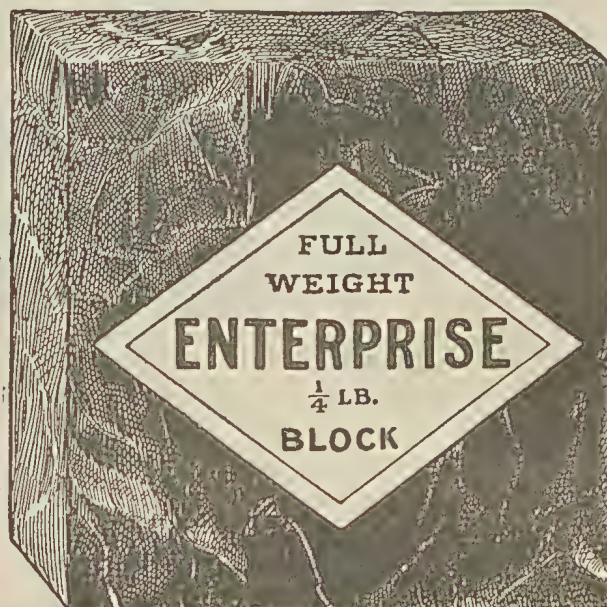
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THE FARM.

Irrigation in South Australia.

The possibilities of irrigation have as yet scarcely been touched. It is true that we do not possess many large running streams which can be drawn upon during the summer months, but against this there are large areas of country where underground supplies can be tapped at moderate depths, while many localities possess suitable sites where the winter floods can be conserved by means of reservoirs.

On the plains between Adelaide and the sea there has of late years been much activity in connection with the raising of green crops for dairy cows and for horse stock in the city and suburbs. Inexhaustible supplies of water are obtainable at comparatively shallow depths in wells and bores; usually the water is raised by oil engines 6 to 10 h.p., but for the irrigation of small areas windmills are used; usually the water is used by oil engines of 6 to 10 h.p., but for the irrigation of small areas windmills are used, and of these there are some hundreds in operation.

The green crops grown under irrigation are mainly lucerne, maize and sorghum. A well tended lucerne field under irrigation can be cut every three or four weeks, depending upon the weather; the hotter the weather the quicker the growth, provided water is supplied. Usually five to seven cuts per season are obtained. Sorghum and maize produce heavy crops, the former up to 50 tons per acre in a single cutting. Crops of maize 12ft to 14ft in height are not uncommon.

On the Adelaide plains and in the gullies in the hills the water supplies are also utilised for the irrigation of fruit trees, and for the growing of vegetables,

the whole of our requirements of green vegetables for summer and autumn use being produced by the aid of irrigation.

On the River Murray we have two distinct systems of irrigation, namely, the pumping of water for the growth of fruit trees, vines, and fodder plants, as at Renmark, on the upper river, and the reclamation of the swamps on the lower reaches, the latter being irrigated by gravitation, the water being admitted by means of sluice gates in the reclaiming banks.

At Renmark there are about 4,000 acres under irrigation, the whole system of pumping and delivery of the water being under the control of a trust, or board of control elected by the landowners, a rate of £1 per acre being levied to meet the cost of pumping, upkeep of plant, etc. Last season the value of the product at Renmark was in excess of £85,000 from a cultivated area of less than 4,000 acres, a good deal of which is as yet not in full bearing. The chief products are currants, sultanas, and raisins. A considerable quantity of apricots and peaches for drying are also grown, while the production of oranges for export and pears for canning and drying are likely in the near future to assume large dimensions.

The swamps on the lower reaches of the river, which can be reclaimed by the erection of comparatively low cheap embankments and watered by gravitation, are variously estimated at 10,000 to 20,000 acres, this wide margin due to lack of definite surveys to separate the areas so available from those which require the water to be raised a few feet. These swamp lands are usually rich, and when sweetened produce heavy crops of lucerne, maize, sorghum, and other green crops, potatoes, onions, etc. As much as nine tons per season of lucerne hay have been cut on such lands, while yields of up to 30 tons of onions per acre and proportionate returns of potatoes have been recorded. Up to the present comparatively limited areas of these swamp lands have been dealt with, but in the course of a few years several thousand more acres will be reclaimed. The valley of the Murray will, in the course of time, carry

a large population engaged in the tillage of irrigated land. At present, owing to the lack of measures to conserve the flood waters which for months at a time run into the sea, the possibilities of irrigation are limited by the amount of water available in seasons of low river. Proposals to lock the river to improve navigation and conserve water for irrigation will, when carried into effect, render possible the utilisation of many thousands of acres of rich land.

In dealing with irrigation, the Sewage Farm, four miles north of Adelaide, must be mentioned. The area of the farm is 628 acres, of which 424 acres are irrigated with the sewage from Adelaide and suburbs. The sewage is strained before being applied to the land, the average daily flow being 2,000 galls per minute, which in wet weather is greatly exceeded, owing to the impossibility of totally excluding storm waters from the sewers. The irrigated land, which is properly graded, and where necessary underdrained, is divided into paddocks of from eight acres to 25 acres, and over one mile of concrete channel and 26 miles of wooden fluming have been erected to convey the sewage over the land. For grazing purposes prairie grass, rye grass, and 'Panicum crusgalli' (banyard grass) have done best. For cutting, lucerne, maize, sorghum, etc., are grown largely, and the crops obtained are exceptionally heavy. The chief sources of revenue are the leasing of irrigated land, depasturing of stock for private owners, and the fattening of stock for the city market. For cows 2s 6d per head per week is charged; and for horses, 3s to 4s; the total grazing receipts amounting last year to £1,645. The Sewage Farm was started in 1881, and has proved a great success, not only from the point of view of the effective disposal of the city sewage on approved methods, but from a financial point of view as an irrigated farm. After payment of rent of 12s per acre, 5 per cent interest on the capital outlay, and maintaining all buildings, flumes, fences, implements, flumes, fences, implements, etc., in good order, the annual profit for the past 10 years has averaged £281.

Diseases of the Skin.

S. S. CAMERON, M.R.C.V.S., Chief Veterinary Officer, Melbourne, in the Victorian "Journal of Agriculture."

Non-Parasitic Skin Diseases.—Hidebound and Chaffing—Itch (pruritis) Nettle Rash or Urticaria—Eczema. Rain-rot in Sheep—Mud Fever—Mallenders and Sallenders—Cracked Heels—Grease (Postular eczema)—Warts or Angleberries.

1. NON-PARASITIC SKIN DISEASES

Hidebound and Chafing.

The term "hidebound" is applied to a condition of the skin in which it is dry, harsh, and tightly drawn over the subcutaneous structures instead of being soft, pliable and easily grasped by the hand. Such a condition is an indication of unthriftiness and wasting; it is especially marked in diseases of the digestive organs (e.g. worms) and in the emaciation stages of tuberculosis or other chronic disease in cattle, but may occur as a symptom in many other diseases. When in this condition the skin is particularly liable to "chafe" and the hair becomes easily rubbed off wherever it is exposed to harness friction.

Treatment.—Obviously the most rational treatment is to overcome the disease of which hidebound is a symptom; but in those cases in which no serious systemic disturbance exists an attempt should be made to improve the general tone by the giving of tonics and by dietic alternatives. The mucilage of linseed is particularly valuable in such cases. It is made by boiling a pound of linseed in a gallon of water over a slow fire until a thickish slime is formed, of which half a pint or a pint may be given mixed with the feed at the evening meal. Carrots, green-stuff, and boiled barley are also useful. Such like changes should be supplemented by the giving of skin tonics of which Fowler's solution of arsenic is perhaps the best. Fowler's solution may be made by boiling together 1½ drams each of arsenic and carbonate of potash in one pint of water until dissolved, the resulting solution being made up to one pint by the addition of water.

Dose—one tablespoonful in feed twice a day.

As an external application for chafes nothing is better than a liniment composed of equal parts of olive oil and water emulsified by the addition of a little carbonate of soda.

ITCH OR PRURITIS.

Itchiness is a symptom of some disease or affection of the skin itself or of some internal (bowel) irritation. For example, itchiness of the tail is often symptomatic of worms (oxyuris vermicularis) in the rectum, and it is a frequent symptom of indigestion and of intestinal worms. It is also present in mange, lousiness and other skin diseases. Want of grooming by allowing the accumulation of scurf and dirt is a frequent cause of itchiness of the tail and mane.

For the subjugation of itchiness the cause must be ascertained and removed; if from intestinal worms these must be evacuated (see treatment for intestinal worms given later). To rid the mane and tail of scurf and dirt an excellent application is a smartly shaken mixture of kerosene (four tablespoonsful) and water (one pint). To allay itchiness of the skin prussic acid lotion is most efficacious—two drams of prussic acid to a quart of water is sufficiently strong. It should be sopped on to the itch part two or three times a day, and being a deadly poison care should be taken that it is not allowed within the reach of other animals or children. When used for dogs it is necessary to muzzle the animal so that he may not lick the part otherwise fatal poisoning will result.

(To be continued).

Miscellaneous Items.

The whole secret of intensive sheep husbandry lies in the working out of the old adage of making two blades of grass grow where formerly only one grew.

For sheep and lambs there is no food that approaches rape in palatability and nourishment. Lambs will fatten on rape after weaning without any gain. They are ravenously fond of it.

The surest and best way to get good horses is to get rid of the poor ones, if you can afford it, and buy reasonably good mares, and then breed them up.

Lucerne performs an important part in the pig industry, and should be grown on all farms where this can be done successfully.

Lucerne provides an element that brood sows require in their systems to bring forth their young with success at farrowing time.

Charcoal given to animals, especially to poultry and swine, acts upon the blood as a purifier, often being found of benefit when there is no definable disease.

At the Government stud farms in France there are in all 3,350 stallions, of which 240 are thoroughbreds, the balance being half-breds and draught horses. For the purpose of the army France has in round figures 120,000 saddle horses and 180,000 draught horses.

Every word that is used in connection with the handling of a horse should have a meaning, and the first thing to be done is to teach him the meaning of each word while working him, and the next thing is so make him obey each word to the fullest extent.

The constitution of a horse may be weakened by making him carry a burden of useless flesh. Good grooming is as essential to the health of horses as judicious feeding and watering. All animals require a variety of food, and this should be considered in the ration of working horses.

The trouble with a great many farmers is that they do not take their boys into partnership with them. Teach the boys that your success means their success.

Practice differs regarding the length of time the litter should remain with the mother. If the sow is to raise two litters in the year she cannot suckle her litter for a period exceeding six weeks.

When weaning do not shut the young pigs in a pen or barnyard, but let them have the run of a plenteous pasture, providing shelter from the hot sun, from inclement weather, and for sleeping.

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South Australian Minor Industries.

INTERESTING INFORMATION.

The olive trees thrive in South Australia, and a considerable amount of capital has been invested in the industry. The olive is grown mainly for oil production, practically nothing being done in the picking of the fruit. The annual output of oil varies according to the season from 15,000galls to 18,000galls, and this meets with an active demand throughout Australia. The number of olive trees included in the agricultural returns is given as 83,153, but a large proportion of these are grown as shelter trees, breakwinds, hedges, etc., and little use is being made of the fruit.

The growing of wattles (acacia) for the bark for tanning is carried on mainly in the southern part of the state. Over a large area the wattle grows naturally, and regular crops of bark are obtained without any outlay in respect to sowing and cultivation. Considerable areas of comparatively poor land have been cleared of the natural growths and sown to wattles with satisfactory results. The trees are fit to strip at five to seven years old, according to soil, etc. The annual production of wattle bark is from 7,000 to 8,000 tons, most of which is exported.

The breeding of pigs is carried on in conjunction with farming operations in most districts, while there are also several large establishments specially devoted to the breeding of pigs for bacon curing. A good number of bacon-curing factories are in operation, and in addition to supplying a local demand, a considerable export trade is carried on with the neighboring states.

Bee-keeping is another industry which is followed with profit in timbered districts, mostly in conjunction with other branches of industry, though a number of settlers rely upon their bees. As the bee-keeper depends almost entirely on the flowers of the native trees and bushes for his honey, the output varies according to the season. The official statistics show the number of hives at from twenty-

four thousand to twenty-five thousand, and the honey yield from one million to one and a quarter million pounds weight. This would not cover the total production as many persons who have only a few hives each furnish no returns. Up to the present, local and inter-state markets have been depended upon to absorb the annual output, but the efforts of our Commercial Agent to open up an export trade with Great Britain promises well, the prices realised for shipments made during the year being satisfactory to the producers.

The potato is cultivated to a considerable extent, the area under this crop exceeding ten thousand acres. The tuber is grown almost entirely for domestic use, though formerly in the Mount Gambier district considerable quantities were used for the manufacture of spirit. The Federal legislation in respect to the use of this spirit resulted in the extinction of the industry. Consideration has been given to the utilisation of the unmarketable potatoes for the manufacture of starch and alcohol for power purposes; and in view of the large areas in the south-east suited to the production of this crop, there should be room in the future for development in these directions. Onions for domestic use constitute another profitable crop. Turnips, mangolds, and other roots receive some attention in the cooler portions of the State, while rape is largely grown as a fodder crop.

Field peas are largely grown in the hill districts near Adelaide, in the South and south-east. Generally speaking in the northern districts, with relatively few exceptions, the spring is too dry for this crop. In the past the growing of field peas has been mainly carried on in conjunction with the breeding of pigs, the bacon made from pigs topped up on peas being much sought after. Usually in these districts peas precede wheat or other cereals for hay, the beneficial effect of the leguminous crop on the succeeding cereals being marked. During late years some farmers have topped up sheep and lambs on the pea crop with satisfactory results. As under

this system the labor and cost of gathering and threshing the peas is avoided, while the financial returns are good, there is little doubt that the practice will rapidly develop. Both sheep and lambs fatten very quickly on peas.

The dry conditions prevailing throughout the summer months over such a large area of the state necessarily limits the cultivation of lucerne, forage grasses and similar crops. In those districts where the conditions are more favorable considerable attention is given to both lucerne and sown grasses, the total area under lucerne being fifteen thousand acres and under grasses twenty-three thousand acres.

Always in Season.

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A Temperance Tonic, brewed from the finest hops grown, matured in our cellars.

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The Profitable Cow.

It should be the aim of every dairy farmer to keep only such cows as will return a substantial profit for the year over and above the cost of keep and management. In the United States the minimum quantity of butter per cow that is estimated to leave a profit is 200lb; but few Australian dairymen know whether individual cows are producing 200lb or 400lb per year, and it is impossible for them to know unless the animals are regularly and properly tested. The variation in the tests of individual cows from day to day is often much greater than is thought possible, except by those who have tested a large number of animals over a lengthened period. When a cow is giving her largest quantity of milk, shortly after calving, the percentage of butter-fat is generally much less than is found as the period of lactation advances. Changes in feed, drink, surroundings, rough treatment, exposure to inclement weather, change of milkers, excitement, and many other causes influence the quantity and quality of the milk, and make it necessary for the greatest care to be taken in testing, so that a wrong impression may not be conveyed. This is one of the matters on which advice from a competent dairy inspector would be of special value to producers, and is another reason why only trained men should be employed to carry out work that has an ultimate bearing upon the future welfare of one of our great natural industries.

Of all the money the State spends there is none better invested than that spent in agricultural education.

Mechanical Cow Milker.

Mr T. I. Mairs, of Pennsylvania, writes in regard to the test of a mechanical cow milker:—

Ten cows of a station herd were divided into two lots nearly equal as regards age, stage of lactation, and productive capacity as determined by past records. The experiment was divided into 4 periods of 4 weeks each. During the first and third period lot 1 was milked by machine and lot 2 by hand, and during the second and fourth periods lot 2 was milked by machine and lot 1 by hand. From the results of the tests, which are given for the various cows in detail, the following conclusions are drawn:—

It required from two to three times as long to milk a cow with the machine as would be required by a good hand milker but one operator can handle two or three machines so he could milk four or more cows with the machine in less time than he could milk the same number by hand.

In general, cows were milked cleaner as they became accustomed to the machine, but individuals varied widely in this respect. Two of the cows tested could never be milked with the machine without leaving one or more pounds of strippings, while the others were often milked as completely as would be done by hand under ordinary circumstances.

No difference in yield of milk was observed that could be attributed to the milking machine; but there was usually a slight drop when changing from one method to the other, always in changing from hand to machine milking.

No injury to the udder took place that could with certainty be attributed to the use of the machine.

The general health of all the cows remained good during the entire experiment.

Wide variations in the flavor and keeping qualities of milk were observed from different cows, but the quality of the milk from each cow remained practically constant whether she was milked by hand or machine."

Interesting Notes.

We take the following interesting extracts on dairy farming from some American writers:—

One account is given of three experiments carried out in 1905-6 1906-7 with 51 cows, in dairy establishments, to obtain information regarding the most desirable quantities of total food and of protein for milch cows. It was found that for a satisfactory milk production accompanied by a gain in weight of the cows a total ration with a starch value of 14.4 lbs per 1,000 lbs live weight, and supplying 3.1 lbs of total protein, or 2.5 lbs of protein, was necessary. This might perhaps be increased to 3.5 lbs of protein, but in that case increase in weight of the cows rather than in milk production would be the desired object.

An investigation in which ensiled beet leaves and tops, and dried sliced potatoes were compared as food for milch cows. On the average the cows produced slightly less milk and fat on the dried beet fodder than on the ensiled fodder but the difference was equalised by the more favorable influence of the former upon the live weight. Dried potatoes had a very favorable effect on the quantity of milk, but the percentage of fat in the milk was smaller than with the beet fodder. There was, however, a large increase in body weight on the dried potato fodder.

Testing Individual Cows.

All who have given attention to the testing of the milk of individual cows agree that the sampling of the milk is of special importance. A correct sample of milk cannot be obtained by milking from the teats into a bottle or jar, or by taking some of the first, middle, and last drawn milk from the udder. All the milk from one milking should be thoroughly mixed by pouring from one vessel into another, and a sample immediately taken before the milk has had time to settle. As the quantity given by an individual cow varies considerably at times, this sample should be

in proper proportion to the quantity, as well as representative of the quality. For taking aliquot samples, a sample tube, in proper proportions, should be used, and the practice followed should be to place the sample of milk in a composite sample-jar, to which some preservative, such as bichromate of pottash, has been added. A record-book should be kept, in which a cow's number or name corresponding with her number or name on the composite sample-jar, is recorded. The milk of each cow should be weighed separately at each milking, and at the end of the testing period the aggregate weight of milk of each cow is found and the average yield per day calculated. The average number of pounds per day, multiplied by the number of days in the month, will, therefore, give approximately the total pounds of milk produced during the month. The percentage of fat is then found by testing the composite sample, and the total fat for the month is found by multiplying the monthly total of the milk by the percentage of fat, divided by 100. At the close of the lactation period the aggregate monthly totals will show the yield for the season. Lack of care in carrying out every detail in preserving the samples and manipulating the test will give untrustworthy results, and such carelessness might be the means of discarding the best cow in the herd.

Importance of Clean Milk.

The question of clean, wholesale milk becomes more and more important every day. Apart from the danger of using impure milk as an article of diet by adults and infants, no man living, no matter how skilled he may be, can make first-class butter or cheese from unsound milk. It is true that one man may have skill enough to make better butter or cheese out of a poor quality of milk than another, but no one can make gilt-edged product out of milk in which bad flavors have been allowed to develop. Milk which is drawn from a healthy cow is pure and wholesome until it becomes contaminated from outside sources. The

reason milk deteriorates in value and develops bad flavors and odors is that dirt and dust and filth are allowed to get into it after it is drawn from the cow, and that the milk is not properly cooled at once, and kept cool until delivered at the factory or creamery. A writer in the 'Michigan Farmer' makes some remarks on this subject, which we deem desirable to quote. He says:—Milk can be kept clean by having a clean stable, clean cows, clean dairy utensils, and a clean man to do the milking. The cows should be kept clean enough so that no filth adheres to them; then there will be no manure or filth to drop into the milk as it is being drawn. Not only this, but the cows' flanks and udders should be brushed and moistened so that there will be no dust or dandruff, or anything of that nature, dropping into the milk pail while the cow is being milked, because it is this dirt and filth and dust getting into the milk that plays havoc with it afterward. Each particle of dust and dirt that gets into the milk is liable to carry with it bacteria or germs, which multiply rapidly when they are in warm, sweet milk, and their development causes the milk to deteriorate in food value. Some of these bacteria produce what is generally known as gassy milk. This produces gassy curd in cheesemaking. Others produce bad flavors, which are noticeable in the butter and also in the cheese. A barn in which the ceiling is covered with cobwebs, these being blown about by the wind or falling down whenever touched by the attendant, is not the kind of stable in which to produce clean, wholesome milk. A stable which contains bad stable odors, is poorly ventilated, and contains foul, bad-smelling air, is not the place to produce good milk, because milk absorbs these bad odors, and it is almost impossible to get rid of them. Consequently the stable should be clean and as free from dust as possible.

It has long been said that the seed of the pumpkin is death to the tapeworm in the human system, and recently it has been claimed that it is just as reliable in the case of animals.

Agricultural shows are no novelties; they are national institutions, and every year they come round with the same regularity as the seasons themselves.

The cow with a deep udder, the four-quarter of the udder well drawn away from the body, which udder, when milked out, is slack, deep, and pliable, and empty, may be looked upon as an excellent milker.

Too many milk and cream cans are, as a rule, washed in the same water, and, although the first few cans washed may be properly treated, still it is questionable if the last cans are not worse after being slushed through half dirty water than if they were not washed at all. The proper method of washing tinware is to first use tepid water with a brush until all milk or cream is thoroughly cleansed from the tin; then use hot water, and afterwards boil or steam thoroughly.

Many days during the month a man has had to wear an extra coat when bringing in the cows to be milked, and the cows, of course, could not keep warm.

Dairying is hard work, but it pays, and if rightly undertaken will make good returns and build up unprofitable soils into rich and productive lands.

The man who has sense enough to let his team stop a minute or two about every fifteen or twenty minutes when ploughing or harrowing will accomplish more work in 10 hours than the fellow who drives his team at a brisk gait for a hour or two before he will let them take a rest.

We are all, more or less, creatures of habit, and we are quite apt to get into the habit of doing our work on the farm in a certain way without stopping to think whether it is the best or easiest way. This is the reason why some are always behind with their work.

Strength, endurance, and speed are not all developed by violent usage, but rather by a judicious amount of exercise given so as to develop but not strain the horse.

A. H. FRISBY,

❖ **Ladies' - and - Gentlemen's - Tailor,** ❖

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Private Address—Angas Road, Clarence Park.

The Royal Show.

The annual live stock show of the Royal Agricultural Society of South Australia was held at the Jubilee Exhibition Ground, Adelaide, during the second week in September, and for the first three days ideal weather conditions prevailed. On the last day rain fell, but too late to interfere with the great success of the show. Entries in the sheep and poultry sections were particularly good, the horses were fair, but cattle were numerically weak. The attendance was a record.

In the shorthorn classes, the Angus Stud had not to face any opposition. Every animal exhibited came from that famous herd, and all the prizes, therefore, went to them, and the reputation of the breed suffered nothing in consequence. Connaught 23rd was the bull selected for champion honors, Rose of Connaught 40th, by Beverley Duke 30th, being the best of the females.

In the Herfords, Mr Phillip Charley battled things out with the Angas Estate. On the average there were only a couple of entries in each class, most of the ribbons going to the latter. The Angas bull, Spark 35th, was champion of his sex, and the Angas cow, Mayflower 16th, champion of hers.

There were but two classes in the polled section, the winner of the bulls being shown by Phillip Charley, and the cows by John Lewis. Ayrshires and Jerseys were the only milking breeds to make any sort of display, but even they were not strong in numbers. The best of the Ayrshire bulls was W. T. Burgess's Hurricane, by Jamie of Oakbank, and of the cows Sir J. L. Stirling's Design of Oakbank. Sir J. L. Stirling took the majority of firsts, the only classes in which he was beaten being the aged bulls and the two-year-old cows and heifer calves. The winners in these three classes were Mr W. T. Burgess in the first and second, and Mrs A. A. Mortimer in the third. What Jerseys there were were very good, the champion bull, Black Antimony, shown by Mr Alick J. Murray being an exceptionally fine animal. In the aged class, Mr W. B. Rounsevell's

Navigator was second to Black Antimony. A son of the champion, entered by the Roseworthy Agricultural College, won the following class. Mrs A. A. Mortimer's entry was successful in two-year-olds, and Mr W. B. Rounsevell's Golden Carnation, by the imported Carnation Fox, secured the awards for the calves. When the cows were brought out for judgment Mr Murray again took the championship with Dina 4th, which beat Mr H. C. Wright's Trixie for first place in the aged class. Mr Wright, however, had better luck in the three-year olds, while the two remaining firsts went to E. Laughton and Cox.

Half-a-dozen stallions competed for the draught stock championship, and the selection was by no means easy. Hill Bros., Ian Hamilton, last year's winner, Southern Star, belonging to the same exhibitor, and Fitzgerald Bros' Sir Hector MacDonald were finally left in to fight out the contest. The first-named was clearly showing his age, and the competition narrowed down to the other two. Southern Star was given the preference. The champion has a fine head and carriage, and a splendid neck, and altogether is a very even horse. Fitzgerald Bros. got a first and second in the four-year-old class, the winners in the other classes respectively being A. W. Davidson, James Hay, and James Bodey. The championship for mares went to Fitzgerald Bros, Hill Bros. taking first and second for mares in foal, J. C. Colebatch first for dry mares or fillies, Hill Bros. first for three-year-old fillies, and J. M. and E. F. O'Sullivan first for two-year-olds. There were no yearling entries. There was a good sprinkling of Suffolk Punches. Canowie Pastoral Company showed the champion stallion, the competition right through being confined to that stud, and the animals exhibited by Norman Brookman. The latter took four firsts and the former three, including the championship. Entries for pigs numbered 40, Berkshires, as usual, predominating. Both champion boar and sow were of that breed, and they belonged to the Roseworthy Agricultural College. James Eddy and H. C. Wright otherwise were the principal winners.

The ram championship this year went to Messrs E. C. and J. L. Stirling's stud, while Mr Alick Murray annexed the ewe championship.

The first, second and third places in the three and a half year ram class were taken by Messrs E. C. and J. L. Stirling, Murray Bros obtaining first in the two and a half year division, Mr Alick Murray second, and Mr W. G. Mills third. For one and a half year Mr E. A. Thomas got a first and a third, and Mr Alick Murray a second. Mr W. G. Mills beat Murray Bros in the one and a half year class. In the corresponding ages for ewes the respective winners were:—Murray Bros 1, Alick Murray 2, E. C. and J. L. Stirling 3, Alick Murdock 1 and 2, Angas Trustees 3, Alick Murray 1, 2, and 3, and E. C. and J. L. Stirling, 1, 2, and 3.

In the farmers' flocks the first prize-winners were Messrs George Day, John Shepherd (two), W. G. Mills, and C. Shepherd. For Lincolns both championships were given to W Richardson's entries, and that breeder secured the majority of firsts. Mr Joseph Grundy ran him close in most instances, beating him for ewes over two and a half years. In Shropshires Sir Samuel Way took the ram championship, and Mr Richard Smith the ewe. Two other successful exhibitors were Messrs Eversley Thomas and William Verco.

The Southdown championships were taken by the Roseworthy Agricultural College and Mr H. Smith. Mr G. Saurbier's name also figured frequently on the prize-list. Messrs Norman Brookman and Leslie Johnson showed prominently in Dorset Horns, the latter taking three of the four first awards. The former won the championship.

Mr A. S. Fotheringham pretty well had a monopoly of the English Leicesters, taking all the first and second prizes. In the Border Leicesters (two classes) Mr E. J. Hector obtained first for rams, and W. Coombe first for ewes.

The hunters' events were well patronised.

There were some excellent industrial displays at the exhibition building.

“Proputty, Proputty sticks.”

Thus sings Tennyson's "Northern Farmer," hearing the refrain in the hoof-beats of his horse.

YOU CANNOT DO BETTER than invest your surplus funds in land. Australia is on the up-grade, and the man who misses his chances now will regret it in a few years time.

HERE IS A BLOCK WORTH BUYING—

PROSPECT.—20 acres, suitable for sub-division, price £1,000, and easy terms can be made.

ANOTHER—

CAMBELLTOWN DISTRICT—30 acres, 5-roomed house, £1,100.

COUNTRY LANDS, including 14,926 acres Cooke's Plains, 6,621 acres Coonalpyn, 1,853 acres Pinnaroo, 5,000 acres Yorke Peninsula (in lots), 110 acres, 4 miles from City, with Orangery, etc.

INVESTMENTS, including 5 new City Cottages, £1,550, returning 8 per cent. net; 2 Houses, £725; and many others.

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(Late Shearer & Hubble),

TAILORS, COSTUMIERS, and MERCERS,

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Two Doors South of Pirie Street,

ADELAIDE.

Every order placed with us carries this guarantee—Perfect Fit, Style, and Workmanship.

Our Cutting Room is under the able management of Mr. Shearer, who has been in this line of business for upwards of 30 years, and has been engaged by some of the Leading Firms of this State.

Latest Goods arriving by every mailboat, also a very large stock carried to select from.

Our Mr. Gurr visits Country Districts every three months, North and South.



FOR THE CURE OF ASTHMA, BRONCHITIS, WHOOPING COUGH,
CROUP, INFLUENZA, HOARSENESS, COLDS,
AND ALL PULMONARY COMPLAINTS.

THE BANNERMAN DRUG & MEDICINE CO., MONTREAL, CAN.

To Encourage Art

THE Proprietors of BANNERMAN'S CANADIAN PINE COUGH SYRUP offer **SIX PRIZES**, viz., a

First Prize of £2. Second Prize of £1.

Four Prizes of 10s. each.

For the **Best Hand-colored Specimens** of the famous **Canadian Pine Canoe Scene** advertisement, on view on almost every hoarding and in every Chemist's or Storekeeper's shop. There is **no entrance fee**. An Outline Design, on paper suitable for water-color tinting, is enclosed in every package containing a bottle of CANADIAN PINE COUGH SYRUP, and this design is to be tinted by *bona fide* scholars of our public schools only. The artist who drew the original will be the judge of the scholars' efforts, and according to his decision the prizes will be awarded as above. The Outline Design for tinting purposes can only be obtained from inside the Cough Syrup Packages. All tinted designs must be completed and forwarded to Agents' address, given below, not later than **October 1, 1908**, at which date competition closes. This will give ample time for scholars in most remote districts to compete for the prizes. Results will be published within a week or two after that date. Further particulars enclosed with each bottle of CANADIAN PINE COUGH SYRUP.

BANNERMAN'S Canadian Pine Cough Syrup

PRICE **1/6** PER BOTTLE.

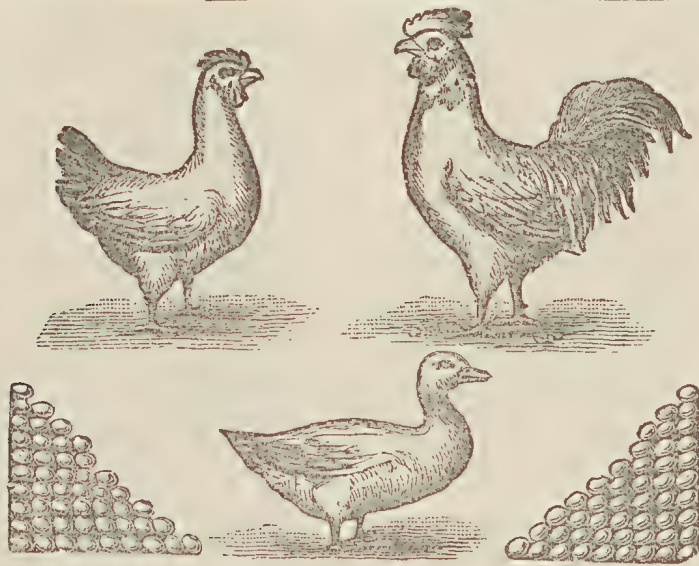
Is obtainable from all Chemists and Stores throughout the State.

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A. M. BICKFORD & SONS, LIMITED.

42, 44, 46 CURRIE ST., ADELAIDE, SOUTH AUSTRALIA.

And at London; New York; Sydney; Melbourne.



❖ ❖ The Poultry Yard. ❖ ❖

Diseases of Fowls.

THE TREATMENT OF A CROP-BOUND FOWL.

(Continued from last Issue.)

Irregular feeding or over-feeding fowls with hard, dry grain is very liable to cause crop trouble. Over-distention by giving too large a quantity of grain after a long fast, or mechanical obstruction on account of some indigestible substance (long rank grass for instance) blocking the passage from the crop to the gizzard, is a common cause. Where no regard is paid to the hours of feeding, and quantities of grain, such as Indian corn and poor oats and barley, are thrown down, some fowls will be sure to gorge themselves greedily with it. As soon as the grain is put within reach they rush eagerly at it and eat all they can, a mouthful at a time. This is unnatural; a fowl should pick up a grain and not a mouthful at once. The bird, stimulated by the presence of others, swallows as much as possible, overfills its crop, and then has, what in a human being would be called 'a pain in the chest.' By instinct, the bird has recourse to water to remedy it, but food can only pass to the gizzard as that organ empties itself of the stuff previously in it.

In the meantime the food swells, and causes distension of the crop. From the frequent occurrence of this, there is a loss of digestive powers; the crop has become large, weak, and flaccid, unable to dispose of the food daily put in it. Appetite ceases and thirst increases, the fowl drinks to the last and dies. If the crop is merely swollen, a good remedy is to pour a tablespoonful of neat gin or brandy, or strong salt water, down the bird's throat, and starve it for a day, —namely, from one breakfast-time until the next—and then feed sparingly with soft food three times a day, mixing some finely-choopped raw onion in it. If this plan fails to effect a cure, operation is necessary. The crop may be opened easily in the following manner:—Pick off the feathers down the front of the breast in a straight line, and about $\frac{1}{2}$ -inch wide, then with a lance or a sharp knife cut it open, the incision being $1\frac{1}{2}$ -inch long, and made over the most dependent part of the crop. Next make a small incision in the crop, introduce the finger and withdraw all the contents and well wash it. Then, if necessary (that is, if the crop has become so loose that it appears to have broken through the outer skin), with a pair of sharp scissors, cut a piece out of the crop, including the incised part, from $\frac{3}{4}$ -inch to 2 inches wide in the

centre. A piece 2 inches wide will, in most instances, be sufficiently large, but such cutting is only to be recommended when a fowl has a very much-distended crop. When the crop is open it is best to pass a finger (greased) into the passage to feel the outlet, in case of their being some obstruction; also to put into the crop a small piece of lard. Close the opening in the crop by sewing it, and when that is done rub the stitches with plain healing ointment, then sew up the outer skin. This is the part of the operation that requires the most care. The crop is quite distinct from the outer skin, and if the operator is nervous, or the fowl fidgety, it sometimes happens that the two are sewn up together. It is a fatal mistake. The outer suture should be sewn closely, and then rubbed with pure grease or ointment, so that every opening is filled. Let each stitch be independent of the other by knotting the ends, and be careful that the lips of the wound are drawn closely together. About four stitches in the crop and three in the outer skin will be sufficient. Horsehair or fine catgut, rubbed with glycerine, may be used. After the operation the bird should be put in a quiet and dark place, and fed only on gruel for a few days, allowing a few hours' rest before food is given. If the patient goes on well, a cure will generally be effected in ten days, or, at most a fortnight. Let your flock of fowls be constantly supplied with sharp flint grit, feed them at intervals, and see that they have clean drinking water. A pinch or two of table salt occasionally mixed with the meat is very beneficial, as it helps to aid assimilation and prevents sour crop.

(To be Continued.)

Poultry breeders may this season be in good heart, in common with all breeder, of profitable stock. The very favourable rains we have had during the winter, and now, just as the warm weather is approaching, a further excellent rainfall mean a plentiful supply of green food for or the poultry, and later on cheap grain.

Poultry in South Australia.

Owing generally to the mild nature of the winter months, and the plentiful supplies of grain, South Australia is eminently adapted to the breeding of poultry, more especially for egg production. True, the heat of the summer months renders it necessary to provide shelter for the stock from the sun's rays, but these entail very little expense; indeed, on most farms the natural brush provides all the shelter required. In the winter months the fowls run in the open without injury, and no elaborate houses are required to protect them against cold, as is the case in many countries.

The poultry industry in this state is already of considerable importance. Besides supplying our own requirements we export to the neighboring States eggs and poultry to the value in excess of £10,000 annually. Practically, we have no overseas export trade, but the experimental shipments of both eggs and poultry during the past two years suggest that there is a profitable trade to be developed with England, more especially with the infertile eggs. The usual range of wholesale prices for fresh eggs in Adelaide during the flush of the year—September to December—is from 6d to 7d per dozen, and as it is during this period that eggs realise the best prices in London, it will be seen that there is every prospect of a large trade being built up, the total cost of shipping and selling the eggs, even on small shipments, being only 3½d per dozen, while the returns from infertile eggs have been 1s 1s per dozen, leaving a net return of 8½d per dozen, at which price there is a good profit to the producer.

Generally speaking, the breeds most in favor are the Leghorns, Wyandottes, and Orpingtons; the first-named being as a general thing, it is claimed, the most profitably layers, while for egg production and table purposes combined, the other two breeds are favored.

The annual value of our poultry industry exceeds half a million sterling. Given the expected development of the export trade, this amount will be greatly

increased in the course of a few years. The breeding of poultry as a special industry is not advocated, except under special conditions, poultry being most profitable in conjunction with cereal-growing, dairying, and fruit-growing, as in each case large quantities of otherwise waste material can be utilised, thus reducing the feed bill to small dimensions.

Of late years considerable attention has been given throughout Australia to a series of egg-laying competitions, and these have demonstrated the possibilities of the business, where reasonable care and attention is given. In these competitions the South Australian breeders have more than held their own.

Three egg-laying competitions have been held in this State, and the returns show that even average layers will, with regular feeding, give a fair profit over cost of food; while where attention is paid to the improvement of the laying strain, the returns are largely increased.

From the experience of our poultry-farmers in various parts of the State, it is reasonable to assume that, with proper attention the farmer or dairyman should realise a profit of at least 5s per hen per annum.

Poultry Brevities.

Foods affect the quality of both the flesh and the eggs.

Grease closes the pores of egg-shells and in this way often prevents their hatching.

To be profitable fowls should be fed not merely for existence, but for growth and eggs.

Make the roosts and all appurtenances of fowl-houses portable, so that you can easily clean the pens.

So far as is possible, arrange the nests so that the laying hens will not be disturbed by the other fowls.

A good way to feed corn meal is to break it into cakes or bread and then moisten with milk before feeding.

In raising chickens aim to use hens that have always been healthy, and select males that are strong and active.

Dry mortar is one of the best egg shell materials that can be supplied.

It is a good plan to mix all of the food for young chickens up with milk, taking care, however not to have it sloppy.

Stale bread soaked in milk until soft and then squeezed sufficiently dry to be crumbly makes a good feed for little chicks.

The balancing up of the profit and loss sides in the poultry yards depends altogether upon the summing up of the little things.

Scalded bran is a good feed for hens; it contains mineral matter which they need and in which many grains are deficient.

Do not over-feed the chickens. Gorging with food to make fat is no way to find a profit in the egg business.

One of the very best feeds for young chickens is cracked or coarsely ground wheat. They can be fed all they will eat of it.

Ducks grow very rapidly, and one engaged in the duck business can turn his money over quickly if he will go into the business in a systematic way.

A hen's egg represents a considerable amount of highly organised nutritious matter, and contains more food for its bulk than any other natural product of the same size.

A single mating with a male will fertilise all the eggs of a litter or 'clutch' laid by a female turkey. After being mated once the hen pays no more attention to the male until she has produced a litter of eggs.

The constant production of eggs is naturally a great strain upon the system, and a diet should be selected which, whilst by no means over-fattening, yet contains a sufficiency of nitrogenous and heat-giving products.

The colour of an egg-shell has nothing whatever to do with the quality of the contents. The material which makes the egg proper, gives it its flavor and food value, is entirely different from that which goes into the shell.

Do Poultry Pay?

Yes, if you REGULARLY use

"KONDO" Poultry Food.

POULTRY FOR PROFIT is a very interesting subject, and one that is not yet definitely settled in this country. However, there is one thing certain, if Hens can be made to lay a large number of eggs, and they do not die from sickness, Poultry-keeping would pay, and pay very handsomely. "KONDO" Poultry Food will assist the former, and by keeping the birds healthy greatly reduces the latter.

To be had from Storekeepers, or from

R. G. LILLYWHITE. Sole Agent,
'Phone 2250. 10 Alma Chambers.

Up-to-date Tailors



We have a large stock of Woollens to choose from.

Fit and workmanship guaranteed.

Also, a large stock of Gents' Mercery to choose from, which can be purchased at 20 per cent. less than elsewhere.

Self-measurement forms supplied on application.

A. BROWN & CO.
15 CENTRAL MARKET.

There is Nothing like Leather.

FOR A GOOD HONEST WEARING
BOOT, GO TO THE

CENTRAL BOOT PALACE

77 HINDLEY STREET, ADELAIDE
(Opposite Max Swift's),

Where the man himself makes and repairs
Boots with the best of material.

Fit and Style Guaranteed. A trial
solicited.

The Cheapest House in town for the
durable nature of work as guaranteed.

THE PIANOLA PIANO

with Themodist,

THE PIANO OF THE FUTURE.

The Piano that Everyone can Play.

Playable by Piano or Pianola Music Roll.

We will take your existing PIANO as part payment.

The time has passed to speculate upon the future of the Pianola Piano. It is here to-day as the most successful innovation in musical instruments.

You may have your choice of four old-established Pianos of high reputation.

THE WEBER
THE STECK

WHEELLOCK
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As a straight Piano or Pianola Piano.

Padrewski's choice of Pianos is the Weber.

Richard Wagner's choice was the Steck.

Manufactured and sold only by the

Pianola Company Propy., Ltd.,

38 King William Street, next Rundle Street Corner.

Frankenburg's for Watch and Jewellery Repairs

(25 Years' Practical Experience),

126 Rundle St., next Plough and Harrow Hotel.

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when in Need of a good Photograph.

Shopping by Post from Fitch's.

We should like to meet everyone of our Customers Face to Face. But it is not always possible. The next best thing is to shake hands with them through the Mail Bag.

Our Mail Order Department

Is so arranged that correspondence shall be Prompt, Accurate, and Plain. If you will drop us a hint of what you require, or what you may require, we will do all the work and take as much pains as —. Yes, a little more pains than if you were Visiting Us in Person.

OUR CATALOGUE OF DRAPERY, CLOTHING, BOOTS AND SHOES

Will be sent you by return post if you just send a Post-Card, or better still, WRITE FOR PATTERNS of anything you require at the same time, and we shall be pleased to send them along.

We are Experts in the Shopping by Post Line, and Guarantee You Satisfaction.

J. T. FITCH,

The Corner, Rundle and Pulteney Streets,
ADELAIDE.

Farms for Sale.

LOWER NORTH—800 Acres, Well Improved, Plenty Water, 250 acres fallow given in; £5 15s per acre, ex crop
SOUTH—850 Acres, improved; £4 per acre. Also 1,100, Perpetual Lease, improved; £3 15s per acre
PARILLA—650 acres. Well Improved, bore with windmill £2 12s 6d per acre ex crop
COTTON—1,500 Acres, C.P. Lease, unimproved; £650 for lessee's interest

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Belting,

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Lubricating Oil,

And All Requisites for Machinery.

CHARLES ATKINS & Co., Ltd., 97 CURRIE STREET.

Business Notices.

BRIDGLAND & ATTERTON.

Our readers will notice an advertisement of the progressive and up-to-date business house of Bridgland & Atterton, who claim to have the largest stock and finest display in the Commonwealth in their specialities of men's and juvenile clothiers and outfitters. They also cater extensively for the order tailor-made garments and their bespoke suit for appearance and durability is unrivalled. The hat, shirt and collar, mercery and hosiery, ties rugs and blankets departments are exceptionally well-stocked.

In order to get down to bedrock in the matter of prices this firm imports direct from manufacturers of repute at first cost the raw material, and manufactures in this State for their customers' requirements; the result is you practically buy at wholesale prices, and have every comfort, courtesy and consideration shown you, which makes shop buying a real pleasure.

It would be an unusually fastidious or hard-to-please customer who could not be suited in this house.

We notice juvenile suits from 2s 6d to 25s the suit, of every shape and style possible. Men's suits 9s 6d to 50s, boy's knickers 1s to 7s the pair.

We notice about 2000 dozen linen collars of every conceivable shape, of excellent quality four-fold at the nominal cost of 6d each.

Other goods are equally low-priced, and a visit would result in mutual profit.

TERAI TEA.

Amongst the tea trade productions owing their existence to S.A. that have made movement ahead in output during the past year, may be mentioned the Terai brand of tea put up by G. Wood Son and Co., Adelaide.

This firm adopted, as an advertisement, gifts of watches to consumers who would return to them a specified number of empty packets, and these letters answer emphatically for the satisfaction of the public both for the tea and the watches. Public opinion has been awakened to the

great merit of Messrs G. Wood, Son and Co's brand of Terai tea in a fashion that cannot be gainsaid. Terai tea has sprung into great prominence by the above offer, and as it has been determined to continue giving a lady's keyless gun-metal 1 small size watch for forty empty 1lb, Terai tea packets returned any time up to August 1st, 1909, as well as the gentlemen's keyless nickel watch for 30 1lb packets. This no doubt will further enhance its reputation and popularity; business methods of introducing wares are many and devious, but Messrs G. Wood, Son and Co are justifiably proud of the results that have emanated from their watch gift.

The public are not slow to see value when it is offered and the various opinions expressed by all sections of the public in their unsolicited testimony when you are in doubt as to what tea to purchase. Individual opinion is very often resented, but public opinion generally has a valuation that is worthy of the utmost respect. Therefore, Messrs Wood Son and Co, are of the opinion that the public vote being in favor of Terai tea to-day, as the popular brand, before a year passes, a far bigger demand will be in swing. As a South Australian trade production, we can personally compliment Messrs G. Wood, Son and Co. upon its merit, and wish them the fullest success. Farmers or large consumers of tea can purchase tins containing 30lb and 40lb, with watches, gent's and ladies', respectively, enclosed.

MR. J. SHEPHERD.

Mr. J. Shepherd, whose saddlery and harness advertisement appears in another column, is a practical man of very extensive experience in the largest cities in the Commonwealth and country districts of nearly all the States. He has held many responsible positions, and has had charge of some of the largest manufacturing establishments in the States. Mr Shepherd has an up-to-date shop in Rundle Street, and is personally supervising his manufactures and importations. Intending purchasers will do well

to inspect his stock and get quotations. He reports that the outlook after five months' trial is very promising and satisfactory.

VICEROY TEAS.

Messrs Wilkinson and Co. began business in Freeman St. as wholesale grocers. about 20 years ago. Trade continued to expand and larger premises became necessary, with the result that shortly after Mr A. Shepherd returned from England 10 years ago, he drew sketch plans of the great warehouse which now forms a landmark in Grenfell street, and is being added to. Included in the increase of manufactures are Viceroy teas, and other things, and the tea-blending equipment has proved far too small to meet orders. The Viceroy and Mandrin blends have grown so much in popularity that a mixer which is the largest of its kind in Australia, and is capable of holding 2,000 pounds of tea, and a smaller mixer, are constantly in use blending the leaves which are responsible for the beautiful flavor of the teas. The immense development of the tea business has been a surprise even to the members of the firm, and it is gratifying to know that a local blend should have met the popular taste so admirably.

By Appointment
to
His Excellency  The Earl of
Kintore,
P.C., K.C.M.G.

BOWEN & CO.,

Diamond Setters,
Gold Chain, and
Jewellery Manufacturers,

Gawler Place,
NEAR GRENFELL STREET.

Pipes Mounted and Repaired.

Gilding and Electroplating done for the Trade.

Country Orders promptly attended to.

Masonic Jewels of every description artistically executed with or without enamelling.

COMMERCIAL AND ORNAMENTAL PRINTING of every description in first-class style, on the shortest notice, and at cheapest rates, at the "Australian Gardener" Office, corner of Pirie and Wyatt streets.

Orchards, Gardens, Orangeries, &c.

We have a Splendid Selection of Really Good Payable Properties, some with Grand River Frontages and Irrigation Plants.

Also Good Lucerne and Dairy Properties.

Also a number of Choice City and Suburban Residences, some of the latter with few acres attached.

Clients driven to inspect, free of charge.

PRIEST & JAMES,

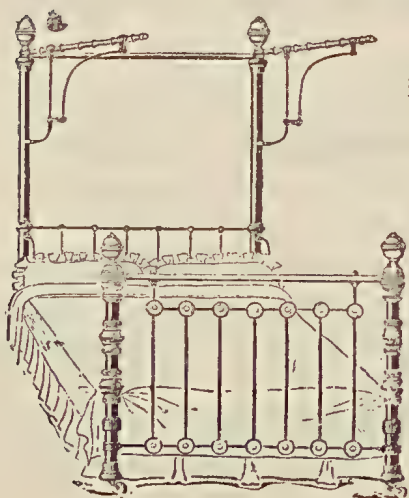
LAND AGENTS,

30 Pirie St., Adelaide.

TELEPHONE 1817.

PREMIER Furnishing Warehouse. MACROW'S.

114 RUNDLE STREET, ADELAIDE, opposite Arcade.



The Firm that treats you fair, are prepared to let you have a choice of the Best Goods for a small deposit and additional insignificant weekly payments.

Terms arranged to suit the convenience of all customers.

WHAT WE ARE PARTICULARLY NOTED FOR—

The splendid and efficient manner in which we pack and forward our goods, irrespective of the value or quantity.

The sterling value of the goods we forward to country clients.

Also that we do not mind what trouble we are put to so long as satisfaction is given to the purchaser.

And last, but not least, that we stock only the Best Makers' Goods.

CASH OR TERMS.

Answers to Correspondents.

Hen-wife—The Wyandotte or Orpington is as good a fowl as you can get for your purpose. By breeding successive relays of chickens and feeding properly you will from them be able to obtain your wish to get eggs all the year round. The breeds suggested will not fly the fences under ordinary circumstances.

E. J. Watchorn—The newly-patented contrivance for removing spines from rose and other prickly stocks is a German invention, and as far as we know is not yet in commerce. If agent's name can be found it will be furnished.

Inquirer—Sheep-shearing machinery was first introduced into Victoria during the year 1887.

Subscriber—Valuable and up-to-date veterinary works are 'The Horse: Its Treatment in Health and Disease,' edited by Professor Wortley Axe; Frideberger and Frohner's 'Veterinary Pathology,' translated by Captain Hayes; and 'Veterinary Notes for Horse-owners,' by Captain Hayes. These can be obtained through any respectable bookseller.

Sahara—You are wrong in thinking neatsfoot the best oil for wood. Raw linseed oil is the best preservative for spade-handles and such like. Neatsfoot is the best oil for leather, but not the best for wood. Vegetable oils for vegetable products, and animal oil for animal products.

KEEPS.

Keep sober if you wish to make steady progress.

Keep diligent if you want to accomplish much.

Keep control of your tongue if you want to keep out of difficulties.

Keep within the vale of influences which have power to ensure your advancement.

Keep striving for the goal of success as there will be plenty to drop out to make room for you.

Keep down expenses if you want to build up assets.

Keep your mind clear and your body strong by correct habits of living.

Keep good company if you want to enjoy a good reputation.

Keep watch over your conduct, as the public will be sure to.

Keep your conscience clear if you want to avoid worry.

Keep your duty ever before you or you will be apt to neglect it.

Keep true to your convictions if you want to maintain your self-respect.



ST. ELMO,

Dark Chestnut Stallion.
14 Hands High. Plenty of Substance.
Splendid Action. Good in all Harness.
Is by Young Tipperary, by Tipperary from a Pawnbroker mare. Dam, Leah, by Sir Lucius O'Trigger; g dam, Lily, by Rushtroom (imp.); gg dam, Conrad's Mare.

First Prize—Adelaide Show, September 1906.

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CONTAINS—

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Tulips
Miniature Sunflower
Globosus Fistulosus Sunflower
Cactus Sunflower
Florida Favorite Water Melon
Grecian Cucumber
Duke of Albany Cucumber
The Flannel Flower

EDITORIAL.

The Vegetable Garden—

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The Tomato

Flower Garden—

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The Orchard—

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ANSWERS TO CORRESPONDENTS.

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&c., &c., &c.

EDITORIAL.

The Season.

THE long drawn out cold wet winter has finished up abruptly after a great splash of rain. For the plains nothing could have been more timely to suit agriculturists. To them it means thousands of pounds in addition to an already assured good harvest. In common with those who know something from a practical point of view of the labour and risk and disappointment of wheat, hay, dairy, and sheep farming we congratulate these producers most sincerely on their good fortune. They deserve all they get, and a great deal more. There are some low, mean spirited people in the world who envy farmers when an abundance of good things come their way, and would make them share their spoil with others who know nothing of hard work morning, noon, and night, always accompanied by anxiety regarding the fickleness of changing seasons. Even in a night a farmer may lose half his harvest by a thunderstorm, or fire, or some other un-

looked for visitation of ill luck. So that when all things combine to secure him a just reward with a good harvest, good clip, good feed for his dairy we rejoice with him. While, however, the splendid late rains served the toiler on the plains well, the downpour of rain which occurred in the Hills districts towards the end of October was a climax of bad fortune to the already too long, cold, and wet winter for the vegetable growers. Many a good garden full of potatoes and peas were washed almost bodily away. When a grower has to sit and listen, or lie in bed awake all night counting up the chances of his vegetable plots while being subject to a flood of water, and rises at daylight to find his worst fears realised, the people who before envy his good luck do not now come forward with practical sympathy in the way of work and money to help him out of his trouble. He simply has to bear it and grin, and go to work again if he has time and money before the season is gone too late for planting. The satisfaction he has is in the forecast that anything he may have left to

grow will fetch a good price. Then the householder grumbles at having to pay so dearly for vegetables, and with a wise philosophy remarks that in a country like this it is shameful to have such exorbitant prices for vegetables.

While the vegetable growers may have lost, however, the orchardist will gain, for his trees have had a great start for their burden of fruit. We have seen some lovely pictures of apple trees in the hills this season, and those that are bearing will throw immense crops of fruit under fair average conditions of weather. There has been a great lot of planting fruit trees this year, and the young stuff will have a splendid start. Nurserymen who had larger stocks than usual of export varieties of apples were sold clean out, and varieties such as Cleopatra were not to be obtained at all. This means that a lot of new ground has been broken up, and the apple industry will soon rise to the proportions it should in our hills districts. There are thousands of acres of ground there that would all grow apples instead of scrub and as the interest in this business increases people will realise that South Australia could not only grow the finest apples in the world but as many as the older countries that are yearly making handsome incomes out of them. The season so far is propitious for fruit growers and we wish them all the good fortune they deserve.

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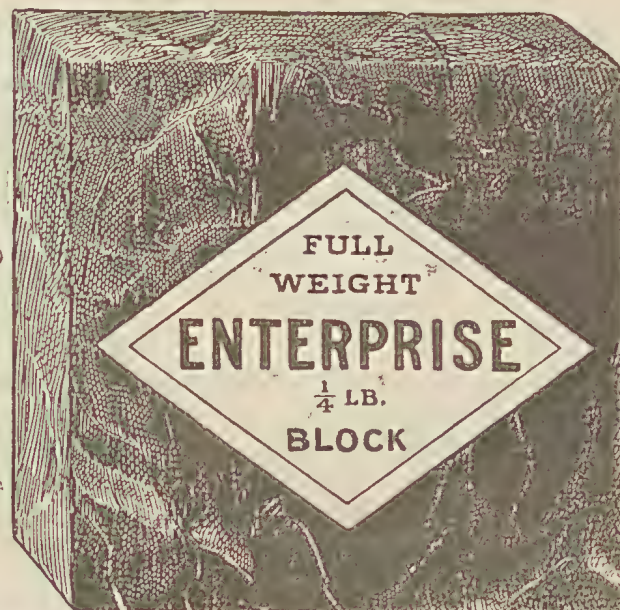
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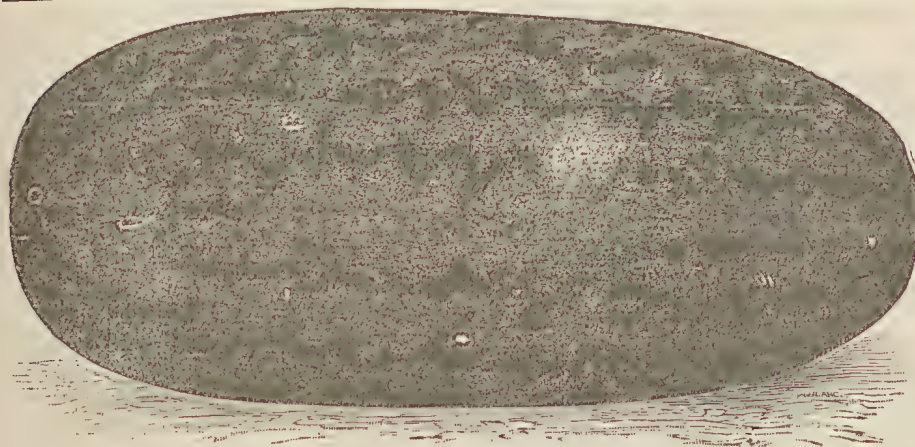
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The Vegetable Garden.

Operations for the Month

Beet, Silver.—Sow a row or two of seed in well dug up ground.

Broccoli.—Sow a little seed and transplant any strong young plants you may have large enough to put out. This vegetable is very much like cauliflower, and may be grown in the same manner.

Cabbage.—Sow a little seed occasionally, not much at a time, but just sufficient to keep up a continuous supply of plants. Plant out a few strong young cabbages from the seed-bed to some well-manured ground.

Carrot.—Some seed may be sown in drills, and when the plants come up, and have attained a fair size, thin out considerably.

Cauliflower.—A little seed may be sown, either in a box or seed-bed, to be protected from the hot sun. Mulch the surface with some finely broken up dry cow-dung, and do not allow the soil to become dry.

Cucumber.—Sow seed in ground that has been well prepared by deep digging and rather heavy manuring. Draining should also be attended to. Any plants that are up and making headway should be pinched back as they extend their spreading shoots, in order to keep them bushy and compact. Plants which are now growing well should have some liquid manure from time to time, but this should be made very weak.

Cress and Mustard.—Sow seed largely. During the hot weather frequent applications of liquid manure will improve them and make them tender and crisp.

Egg-plant.—Plants from seed sown some little time back should be ready to plant out in the garden, three feet or more apart every way. Seed may be sown, if plants have not been raised.

Leek.—Sow a little seed in the seed-bed, for succession. It is always well to have a few young plants ready to put out when required. Plant out a few strong young leeks deep in the soil. Fair-sized plants that are growing well may be earthed up to make the stalks white and tender. This vegetable can be strongly recommended as being most wholesome.

Lettuce.—Plant out a few strong young lettuces from the seed-bed, but make the ground rich with well-rotted manure before planting. They should be grown quickly at this time of the year, or they will probably run to seed.

Melons.—Sow a few seeds in well-prepared ground, in the same manner recommended for cucumbers. The pie or preserving melon should not be forgotten, as it is very productive and useful for preserve. The water melon is a much neglected fruit. On a hot summer's day there is nothing so agreeable, so refreshing, and thirst-quenching as a well-ripened scarlet-fleshed water melon, serving the double purpose of food and

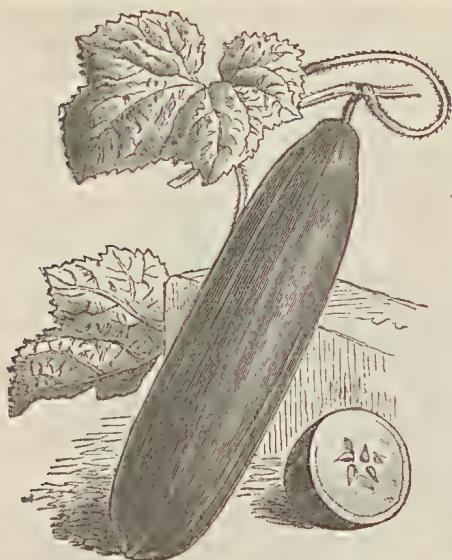
drink. Adelaide seedsmen catalogue a dozen or so kinds, and it is difficult to say which are the best. Very large fruiting varieties are in most instances less desirable than the medium sized kinds. The fruit does not improve by keeping after being cut open. The plant needs a richer soil than that required for the rock melon, and as the vine is much more luxuriant in growth the seeds should be sown in patches, about 8 feet apart; sow about ten seeds in a patch, and thin out to two or three plants. The preserving citron or pie melons should be treated similarly to the water melon.

Okra or Gumbo.—Plant out a few seedlings if any are available, but if not sow some seed. This vegetable is useful for stews and soups. Its young seed pods contain a considerable quantity of glutinous matter, which is said to be wholesome and nourishing. The flowers are pretty, and the plant may be grown for ornamental as well as useful purposes.

Oyster Plants.—Two delicious vegetables, highly nutritious, but seldom grown in our gardens, are salsify and scorzonera, sometimes called the oyster-plants, because when cooked like parsnips their flavour somewhat resembles that of the oyster. The seed should be sown now in drills about 18 inches apart, the seedlings to be thinned out to half the distance. Scorzonera roots do not grow quite as large as those of salsify, and the plants may stand a trifle closer. The soil should be deep and fairly rich, and like the carrot and parsnips, the roots should not come in contact with fresh manure. The young leaves, if blanched, may be used as a vegetable, but the plants are chiefly grown for their roots. Scorzonera has black roots and salsify white.

Onion.—Sow a little seed, and keep the onion beds free from weeds. Scatter amongst any onions which you may have growing a mixture of soot and salt, half and half. This is a useful stimulant, and it will, in a great measure, prevent the attack of worms and insects.

Peppers, Chilli or Capsicum.—Plant out a few seedlings, and, if required, seed may be sown. A very few plants will serve for the purposes of a family.



GRECIAN CUCUMBER.

Potatoes.—A few rows may be planted. Plant only whole potatoes of a medium size. Use plenty of rotten horse or cow dung.

Pumpkins.—Sow some seed in well-manured or rich ground. Plants that are progressing should be kept pinched back to prevent them rambling too much.

Radish.—Sow a little seed from time to time and use the plants as quickly as they are ready. Old radishes are almost useless and indigestible, and should be thrown to the pigs.

Rhubarb.—Sow a little seed in order to raise plants to put out next winter or early spring. This is a useful plant to grow, and no garden should be without it.

Sweet Potatoes thrive best in a warm sandy loam. The tubers will readily start into growth if laid out in a warm bed and covered about an inch or two with stable dung kept rather moist. The cuttings, or rooted plants, should be planted out in rows. These rows should be about four feet apart, and the cuttings should be planted one foot apart in the rows. When the vines are growing, it would be well to raise them occasionally to prevent them taking root at the joints.

Spinach.—Sow a little seed, but very little.

Tomato.—Sow seed in such quantity as may be required, and plant out from the seed bed if any plants are available. Keep large plants tied up to some support if possible, and the fruit will then ripen better and be less liable to rot.

Turnips.—Sow a little seed in rows.

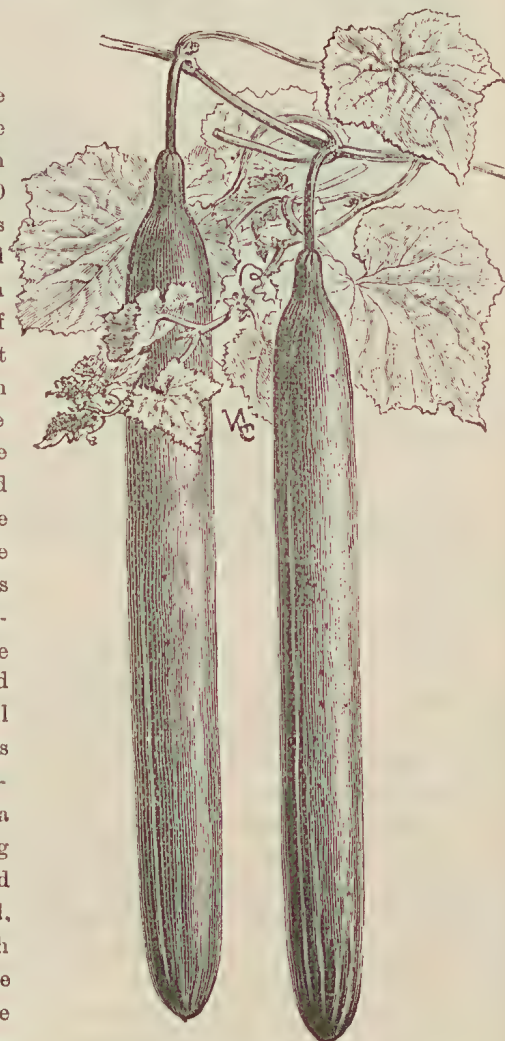
Vegetable marrow.—Sow a little seed in the same way as recommended for cucumber.

There is a lot to do at this season besides the sowing of seeds. Crops when crowded must be thinned, and weeds kept under, and the surface soil should be occasionally stirred. Peas must be staked to prevent injury from wind and heavy rain. Slugs and snails must be kept well under, or much damage will be done to seedling plants.

Vegetable Tallow.

The Chinese vegetable tallow tree grows in the mountainous parts of the province of Hankow. It is found in semi-rocky soil at an attitude of 2,500 feet. The tree is of medium size, and its heart-shaped leaves turn a brilliant red in the autumn. The seed-pods are seen in abundance on the small branches of the tree, and contain three seeds about the size of a coffee bean, greyish-white in colour. As the autumn advances the pods dry up, exposing a cluster of three seeds. When picked they are stemmed and made ready for use. They are steamed, and the white exterior of the seed, which is the vegetable tallow, is thus removed. A small brown seed remains, which is ground in the Chinese mill-stone, boiled, made into cakes, and placed in a press, and a light-brown oil extracted from the kernel. This oil is known as 'Tze-yiu' or vegetable tallow-seed oil, and is used by the natives as a burning oil, and also for adulterating more valuable oils. The refuse is used as a fertiliser. The tallow is collected, melted, and put into large tubs, which serve as a mould. Blocks of wood are put into each cake, to which ropes are attached, and serve as handles. The vegetable tallow is used by the Chinese

principally in the manufacture of candles it being of greater consistency than the other oils used for the purpose, and only a small quantity of the white wax is needed. The vegetable tallow industry of Hancow is of considerable extent. The tallow is said to mix readily, and European firms find use for large quantities in the manufacture of soap and candles. It sells in the market at from 27s 6d to 30s per picul of 133lb., and the tallow-seed oil is worth a trifle less. Up to November, 1907, nearly 27,000,000lb. of the tallow was exported from Hancow. The *Stillingia* is hardly known about Adelaide, except when very young. Owing to its brilliant scarlet foliage in the autumn, it is worthy of a place in our gardens. Its flowers are not showy.



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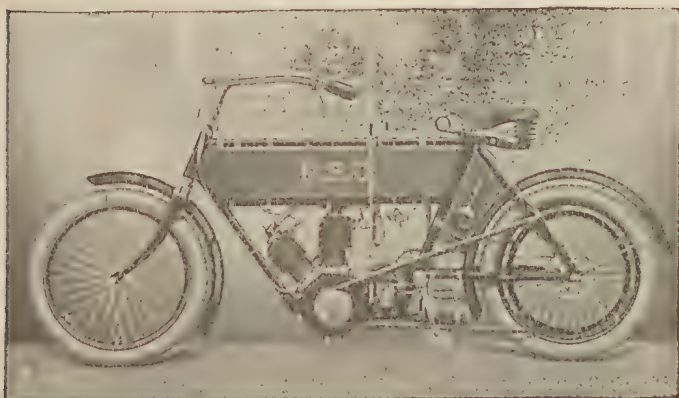
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The Flower Garden.

Notes for the Month.

During this month the chief work will be the keeping of weeds in check, trimming edgings and hedges, keeping walks clean and tidy, and grass plots cut short.

Roses should be in splendid bloom, especially the tea-scented and hybrid tea-scented varieties. If the rose seeds or seed vessels be cut off and the little branches on which they were growing be cut back an eye or two, fresh flowers will soon appear. Rose plants which are obtained from the nurserymen are generally grafted on some strong growing stock, and very frequently the stock is allowed to grow in mistake for the proper rose. Instances of this may be seen all over the State in the little gardens about town residences. Close attention will soon show the difference in the foliage of the variety of rose used for a stock, and any growth which appears about the stem or from the roots should be cut clean away. Give the roses a gallon or two of liquid manure occasionally, and it will make them thrive splendidly. There is no flower which gives more satisfaction than a rose, for it

will stand no end of ill-treatment, and will always respond to attention and care.

As the earlier blooming bulbs go out of flower attention should be given to the planting of other kinds. One of the most useful of bulbs is the gladiolus. By planting at various times flowers may be had at almost any time of the year, but the main planting is made now. To be seen to the best advantage these brilliant flowering plants should be planted in beds by themselves, or in clumps of five, or ten, or so but not singly. When associated with roses, lillies, cannas, dahlias, &c., they are seen to great advantage. A fairly open position, and a deep, well-drained soil suits them best. It is better to apply manure to the soil some time previous to planting the bulbs. If this has not been done the manure, which should be well-decayed stuff from the stable, should be placed at a little distance below the bulbs, and these should be 3in. or 4in. below the surface. Some growers make a point of placing a little charcoal, or wood-ashes, or sand, about the bulb, and this no doubt is of value if the ground be at all stiff. In dry weather the plants

should be liberally supplied with water. The gladiolus makes a very good pot-plant, and the flowers, when cut, are valuable for room decoration; when placed in water they will keep some time, and every bud will open.

Except the very tender subjects, nearly all kinds of plants that are in pots may be planted out now. Early planting means that they will get established before the hot summer weather sets in, and while the soil is moist and cool there will be little occasion for watering.

Many kinds of bulbs flower well this month, and chief amongst them is the magnificent species known as the Hippeastrum, which is remarkably easy of cultivation, for, once it is planted, it may remain undisturbed for years, and will continue to flower without fail. Do not cut away the leaves of any bulbs which have finished their flowering, but let them die away of their own accord. These leaves gather material from the atmosphere which assists the bulbs to lay up a store of nourishment for the production of flowers next season. As the leaves die off, mark whereabouts the bulbs are growing, so as not to injure them when digging and cleaning up the garden.



TULIPS.

The Tulip has a greater variety of rich delicate, and attractive colors than any other section of spring-flowering bulbs. They are either of one single color (pure white, flesh, pure yellow, pink, red, scarlet, crimson, &c.), or of various colors or markings on white or yellow grounds. Excellent for masses and mixed borders. There are double and single varieties. The flowers of the first named last longer than the single ones.



MINIATURE SUNFLOWER, STELLA

Dahlias may be planted at any time convenient. Take care that the tubers have a portion of the crown to each, otherwise they will not grow. Dahlias are propagated by division of the tubers, but care must be taken that there is a bud present at the base of the stem and at the upper end of the tuber; the latter without a bud is of no value. Professional growers of these popular plants prefer stock raised from cuttings to that raised by division; but glass and heat are necessary to ensure success by the latter method. The cuttings must be taken off whilst still quite small, planted in small pots filled with sand and then placed in a hotbed or glass-house under a bell-glass. Dahlias are easily raised from seeds, and if these be sown now in a warm frame the resultant plants will bloom in the autumn. A deep rich soil of a loamy character suits these plants best, but they can be made to grow in almost any kind of soil. A stiff heavy clay is most unsuitable, but this even could be ameliorated by adding plenty of horse-dung wood ashes, refuse from the rubbish-heap, &c., while a very light soil could be improved by the addition of a little stiff loam or even clay. These popular plants may be grown in a shrubbery or flower borders but if really fine blooms are wanted they should be planted in beds by themselves, where

they may be watered, manured, and generally better attended to. There are many different classes of dahlias, but those of the cactus section are the most popular, the blooms being more useful when cut, and the colours of them being very gorgeous.

The variety known as the cactus dahlia is one of the best to plant, and is coming into great favour. Single varieties, also, are very pretty, and are well worth growing. Some of the striped kinds are remarkably good.

Plant out balsams and any other tender kinds of plants which you may have raised. The balsam needs a rich warm soil to enable it to come to the greatest perfection. It needs also plenty of space in which to grow.

Do not forget to put in a few scarlet Salvias and a few Celosias. The first mentioned is a shrubby little plant varying in height from 9 in. to 2 ft., according to the variety; it grows very easily and flourishes well in the summer, provided it gets an occasional watering. The foliage is of a refreshing green, and at the point of extremity of each shoot is produced a spike of bloom of an intense crimson or scarlet shade: this spike keeps on blooming for a few weeks, and when in full bloom the plant is one blaze of color and very effective. It is easily propagated by seed or by cuttings of the young growths placed in sand. Seedlings and plants can be procured from any nurseryman at a cheap rate, so that the plant is accessible to all. The



CACTUS SUNFLOWER, ORION.

showiest varieties to grow are 'Glory of Stuttgart', 'Ingeneuer Clavenaud,' and 'Bonfire.'

Celosias, or feathery cockscombs, also make a magnificent show in masses or intermingled with other plants. The flower spikes are born in great abundance on low bushy plants, and resemble in appearance an ostrich feather. In this respect they vary from the old flat or curved cockscombs which presents rather a heavy ungainly appearance, whilst the Celosias are very graceful. The colors vary from pure white to deep purple, whilst the yellow is represented in several shades. Sow from seed in light sandy soil: at this time of the year they could safely be sown in the open.

Tuberous Begonias should now be showing foliage if potted earlier in the season. Should this be the case gradually give them more water and occasional watering with liquid manure will do them no harm. Where the bulbs have not been potted pot up at once in small pots in a loose, sandy mixture of sharp sand, compost, and well-rotted manure, but see that plenty of drainage is placed at the bottom of the pots. For drainage broken charcoal is very good, as it helps to purify the soil. Give very little water at first, gradually increasing the supply as the leaves expand. When the pot is filled with roots turn the plant into a larger pot, pressing the new soil firmly around the ball of roots, and feed up well with liquid manure.



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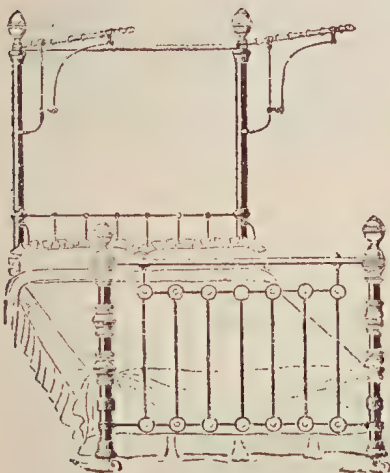
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NOTICE TO FRUIT AND PLANT DEALERS.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.
2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.
3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.
4. No plants other than those growing in pots having soil attached to their roots will be admitted.
5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.
6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.
7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.
8. No plants or portions thereof will be admitted from any State or country where phyloxera exists unless accompanied by a declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in the exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phyloxera exists or has existed in the plantation from which the plants originated.
9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.
10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace.

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The Flannel Flower.

We only know one truly local name for this plant, and that is the 'Flannel Flower'—a rather unpoetical designation, but a really descriptive one, and one universally accepted. It is, of course, in allusion to the involucre, which looks as if it were snipped out of white flannel. It is also known to a few by the name of Australian Edelweiss. The true Edelweiss is found on the Alps of Europe, and its botanical name is *Leontopodium alpinum*. It belongs to the Daisy family (Compositae), to which our flannel flower does not belong, as we shall presently

see.

It was called *Actinotus Helianthi* by Labillardiere, the celebrated French botanist, who visited the eastern and southern coasts of Australia (including what is known as Tasmania) during the latter part of the last century. The generic name *Actinotus* is from the Greek *actinotos*, radiated, in reference to the rayed appearance of the involucre, i.e., what people often call 'petals' in speaking of the flannel flower, but whether correctly or not will be evident later on. The word is akin to a Greek word which signifies the rays of the sun. The specific name *helianthi* is from *helianthus*,

the botanical name for the sunflower, which word is again derived from the Greek *helianthes*, a sunflower. The name, therefore, is an allusion to the general resemblance of the flannel flower to the sunflower.

Erect, perennial, 1 to 2 feet high, covered with a soft dense almost floccose or tomentum, rarely wearing off from the upper sides of the leaves.

Our flannel flower is, closely related to the carrot, parsnip, celery and other prosaic plants, and not to the daisy, of which the minor poets love to sing. Let us explain. Take a flannel flower. Pull the so-called petals off, for they are in the way. We then have a soft woolly hemisphere, which consists, not of one flower, but of a very large number closely packed together. Either cut or pick away half the flower head. Even by naked eye it will be then seen that the flower head is as stated, and it will be observed that the tiny flowers all radiate from one point, like the spokes of an umbrella. If you are ever in doubt as to what an umbel is, always think of the spokes of an umbrella. Of course, in the case of the flannel flower, where the individual florets are so minute, the stalks of the umbel must be more minute; in fact, they are so small that beginners overlook them altogether. It is best to examine this flower with a magnifying glass if one is handy, but this is not necessary to anyone with good eyesight. Most of the little florets have anthers, which can be seen to be more abundant towards the circumference (periphery) of the flower-head, where it is yellow, than towards the middle. When the flannel flower is fully out, and cannot run to seed, this can be made out readily by the naked eye.

Just one other note about the flower. It may be that some of our readers scarcely thought we were serious in throwing doubts upon the 'petal' being petals. But the fact of the matter is, the flannel flower has no petals. If you were to put the most searching power of the microscope on to these little florets we have been speaking about, you would find no petals.

The 'petal' of the flannel flower are bracts—that is to say each 'petal' is a bract—and the whole of them, the whole 'star,' is collectively known as an in-

volucre. A bract may be described as a floral leaf, and it is not an essential part of the flower. The gaudy crimson part of the Poinsettia so often seen in gardens consists of bracts, the flower proper being comparatively inconspicuous.

The flannel flower not infrequently shows good examples of what is known to botanists as 'floral proliferation,' and popularly as 'hen and chickens.' Six to eleven (and even more) small heads of flowers, each on pedicels, and surrounded by six bracts, often grow out of a common involucre.

In this connection it may be desirable to allude to the fusion of parallel shoots known as 'fasciation.' Often what appears to be the stalk of the flannel flower is apparently flattened out to a ribbon more or less wide. We have seen them as much as 4 inches wide, but fasciated stems half an inch wide are common. This phenomenon is usually accompanied by floral proliferation.

It is particularly abundant in New South Wales, where it is apparently confined to the coast district, the dividing ranges, and the table-lands. Found usually in the most sterile soil, though not exclusively so.

The amateur will not find it easy to propagate the flannel flower. Our experience is that the fruitless do not readily germinate, but it may be propagated from 'seed' or fruitlets. Another method is by dividing the plant, but no matter what method is adopted it is not easy to ensure success.

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The Tomato.

The common tomato of our gardens belongs to the natural order Salanaceae, and the genus *Lycopersicum*. The name from *lykos*, a wolf, and *persica*, a peach, is given it, because of the supposed aphrodisiacal qualities, and the beauty of the fruit. Common names for the tomato are Love Apple and Wolf Peach in America and England; in Germany it is named *Liebesapfel*; in France, *Pomme d'Amour*; in Italy, *Pomo d'oro*; and in Poland, *Pomidor*. The name tomato is of South American origin, and is derived from the Aztec word, *xitomate*, or *xitotomate*.

The tomato is usually classed amongst vegetables, but it would be more appropriate to place it amongst fruits. Its cultivation is now on an enormous scale in America, in parts of Europe, and the area devoted to it in our own country is increasing annually to a large extent. In the United Kingdom, in addition to the immense quantities grown there for market, both under glass and in the open air, many hundred tons of tomatoes, valued at nearly a million of money, are imported from the Continent, chiefly from Italy. Compared with some other fruits, the tomato may be considered of fairly recent introduction; yet, as far back as 1554, the yellow or golden apple, and the large red or Love apple, were described by Matthioli. Between the above date, and as recent as 1860, we find the cherry tomato, pear-shaped, white-fleshed, tree, and numerous other kinds described by various writers, and in seedmen's catalogues.

The tomato may be looked upon as one of the most wholesome and valuable esculents we have. Assertions to the contrary have occasionally been made by ignorant persons; but their statements have not been corroborated by facts. The food substance present in tomatoes in the largest amount is sugar while the organic acids are the main substances which give individuality or character to the fruit. A chemical analysis of this fruit says:—It contains from 92 to 95 per cent. of water, about half of one per cent of ash, one per cent of protein or flesh-forming matter, and about five per cent of carbo-hydrates of heat giving substances. The quantity of sugar which constitutes the main part of the carbo-hydrates is very variable in different varieties; but it may be said to average about $3\frac{1}{2}$ per cent.

When the tomato is to be used for food care should be taken to retain all the juice, as the nutritive properties are present largely in soluble form, and any diminution of the amount of juice entails a corresponding loss of nutrients. For the same reason the freshness of the fruit should not be impaired, as the acid salts quickly undergo chemical change.

Abundant and unobstructed sunlight

is the most essential condition for the healthy growth of the tomato. It is a native of the sunny south, and will not thrive except in full and abundant sunlight. The entire plant needs sunshine. Grown in partial shade the plant will produce plenty of haulm, but little fruit, and that of inferior quality; besides, the blossoms often fail to set owing to excessive leafage or other obstruction.

The tomato plant is usually treated as an annual, but it is really a short-lived perennial. Its roots are numerous, but they are short, and can only gather food and water from a limited area. They are exceedingly tender, and incapable of penetrating a hard and compact soil, so that the condition of the soil as to tilth is of greater importance with regard to tomatoes than with most garden vegetables. Another characteristic of the tomato root is that the period of their active life is short. When young they are capable of transmitting water and nutritive material very rapidly, but they soon become clogged and inefficient to such an extent as to result in the starvation and death of the plant.

The key to the most successful culture of the tomato is the securing from the start to the finish of an unchecked uniform growth, though it need not be a rapid one. The failure to do this is the principal reason for the comparatively small yield usually obtained, which is very much less than it would be with better cultural management. The possible yield per plant is enormous. From 1,000 bushels to 1200 or even more bushels to the acre are sometimes produced in California, not only in small holdings, but also in large fields.

The tomato is not a gross feeder, nor is the crop an exhaustive one, but the plant is very particular as to its food supply. It is an epicure among plants, and demands that its food shall not only be to its taste in quality, but that it be well-served. In order for the plant to do its best, or even well, it is essential that the food elements be in the right proportions and readily available. If there is a deficiency of any single element, there will be but a meagre supply of fruit, no matter how abundant the supply of the others. An over supply of an element, especially nitrogen, is highly less injurious, and will actually lessen the yield of fruit, though it will increase the size of the vine. Tomato roots have little power to wrest plant food from the soil. The use of coarse, unfermented manure is often more unsatisfactory with this than with other crops.

In the use of farm-yard manure for the tomato an excessive quantity should be guarded against, for the reason that it encourages an undue development of stem and foliage rather than of fruit. The slowness of its action will also tend to lengthen out the life of the plant, and retard ripening. As the tomato belongs to the potash-consuming class of plants,

any manurial mixture should be particularly rich in this element.

The following formulæ are recommended by a very experienced and successful grower:—One part of nitrite of soda, two parts of dissicated blood, four parts of superphosphate or bone manure, and three parts of kainit; or one part of nitrite of potash, two parts of guano, or dessicated blood, and two parts of superphosphate or bone manure. The soil compost having been properly prepared at the start, these manures may be applied as the first fruits set. They may be dissolved, and applied at the rate of half-an-ounce in a gallon of water, given once a week; or the same quantity sprinkled over a square yard of soil.

Although the tomato is not a desert plant, and needs a plentiful supply of water, it suffers far more frequently, particularly when the plants are young, from an over-supply than from the want of water. Through drainage at the root, and warm, dry, sunny air, in gentle motion, are what it delights in.

Tomatoes vary much in habit, and the soil also should be reckoned with when planting out. Some dwarf kinds may be planted $2\frac{1}{2}$ ft. apart, while the larger growers in rich soil should be about four feet apart.

Tomatoes are what is termed perfect-flowered plants, that is, the pistils, and stamens are found in the same flower. No insect seems to make it his business to visit tomato flowers. Hence tomatoes are nearly always self-fertilized, and crosses by nature are not common. When conditions are favourable the pollen shakes out readily by the slightest motion. It must be remembered that it is the seed that causes the fruit to develop—hence no seed means, as a rule, no fruit, and no pollen means no seed. In dry, warm weather the tomato sets its fruit generally all right, but under opposite conditions it does not; and artificial pollination is sometimes resorted to. Under glass pollen is sometimes collected from those flowers that yield some, and it is applied to all others. A sharp rap with the finger will pollinate a whole cluster of flowers, and a shake of the plant will sometimes be sufficient. These methods should only be carried out when the sun is shining and the air dry.

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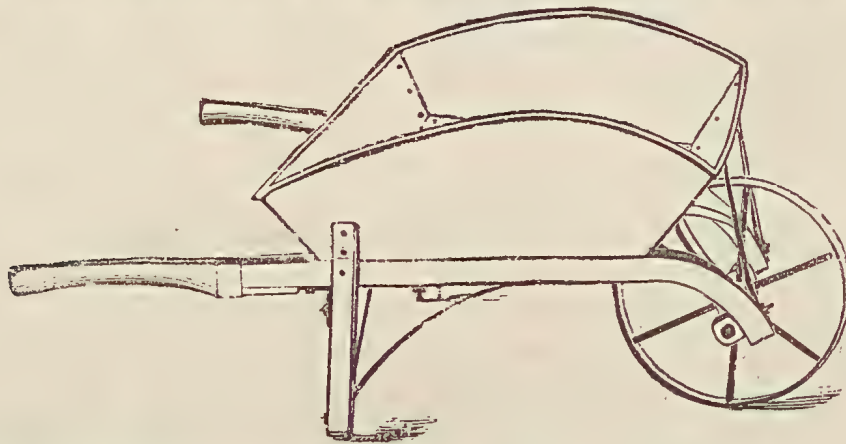
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The Orchard.

Hints on Planting Fruit Trees.

By C. T. Cole. Inspector, Vegetation Diseases Act, in the 'Journal of Agriculture.'

There are four things essential to the welfare of newly planted trees, viz., Trenching, Draining, Planting, and Mulching. Most people think if they procure a young fruit tree or vine from a nursery, dig a hole in their garden and put it in, that it will be sure to grow and bear fruit. They are, however, often disappointed and nurserymen get the blame for selling them inferior trees or plants. If a little thought were exercised in the preparation of the ground and other matters, the results would be more satisfactory to all concerned. Beginners and others will find the following short instructions helpful.

Trenching.—Trench the ground from 15 to 20 inches deep if the soil be rich, such as is found on the banks of rivers and creeks. Should it be poor and sandy 2 feet will not be too much; but if the soil be good, although not so rich as that found by the sides of rivers and creeks, 20 inches will be found quite deep enough. Many think it necessary to turn the subsoil on the surface; but my experience in many places makes me favor retaining the surface soil in its natural place. When good drainage is provided, 6 inches may be added to the depths mentioned, but in no case trench deep

where the water cannot readily be got away. I have seen a piece of ground trenched where a clayey subsoil was thrown on the surface; but trees were duly planted, but the first few heavy rains ran the surface together like cement, and it took years of working and manuring to bring it into a nice open soil again. During this time the original surface soil was below, entirely out of the influence of the atmosphere, and when turned up for a new plantation was quite sodden, and sour; the roots had not penetrated it, nor never would although it was by far the better soil. The ground had not been drained by either of the methods mentioned further on; otherwise the result would have been much more satisfactory. Even then it was doubtful whether it would not have been better if the subsoil had been left where nature had placed it.

In performing the work, supposing the depth of the trenching to be 15 inches, the soil should be removed from the first trench to the depth of 10 inches, and the remaining 8 inches of subsoil turned up in the bottom of the trench, and there allowed to remain as turned up, without being finely broken. The next trench should be opened, filling up the one previously made; dig up the subsoil as before, and so on, every successive trench. If 20 inches is the desired depth, dig the first trench out 12 inches deep, and break up the remaining 8 inches of subsoil as mentioned for the 15 inches. When 24 inches is the depth desired, the first trench should be dug out 14 inches deep, breaking up the remaining 10 inches as before.

If this mode of preparing the soil is adopted, the trees or vines cannot fail to make good headway. It will be seen from the foregoing that, though the surface soil has been moved to a considerable depth, it is still retained near the surface where the trees can get the benefit of it, whilst the lowest subsoil is allowed to remain below.

When the soil is not very good, or an old plantation is being done up for a second planting, a moderate application

of manure dug into the bottom of the trench will prove of great advantage. The surface can be manured at convenience, after the trees are planted; this is necessary when the soil is naturally poor.

The foregoing remarks, of course, do not apply in all cases. There are districts where a layer of gravel is found under the surface, cemented together like stone. Where such is the case, it becomes necessary to bring it to the surface where it can be managed or removed away altogether. Again, some of the mellow chocolate soils are naturally well drained, and almost as loose two feet below as on the surface. Where these exist, the soil may be turned about anyhow; but, generally speaking, and under most circumstances, I believe the above system, or something approaching it, will be found satisfactory.

Draining.—Draining is of the utmost importance to insure success in plantations of fruit trees and vines, especially those of fruit trees. It can be done by laying drain pipes at equal distances through the soil. This is the most approved method, and where practicable and well performed, is productive of great results. Surface draining can also be carried out. The latter is done by throwing the ground up into beds from 1 to 15 feet wide for one row of trees, and forming narrow deep walks or drains between every bed, to carry off the surface water and to drain the beds. If possible, the bottom of these drains or walks should be as deep as the trenching of the beds, in order to carry off the whole of the surplus water out of the water out of the trenched ground.

In moderately dry soils, beds may be formed wide enough to hold a double row of trees. This mode of draining can be carried out with very satisfactory results; a greater surface is thus exposed to the beneficial influences of the atmosphere. Under this mode, surface draining is especially adapted for ground where there would be no outlet for water from underground drains. Trenching in such ground should not be deep; the soil from the walks or drains would materially

increase the depth of soil on the beds. There is, perhaps, a little more difficulty in keeping the ground as neat as when it is formed in larger squares, with underground drains and ordinary garden walks, owing to the deep sides to the beds.

Planting.—When selecting fruit trees, be sure and procure them with short stems, as long stemmed trees are greatly subjected to heavy winds which injure the roots; the sun is also apt to burn the stems. Tall stemmed trees are a mistake as their crops are difficult to gather and their management in general is troublesome. In preparing the trees for planting, cut off all the roots to an equal distance from the stem, making the cut under, from the centre to the outside. I would advise early planting of fruit trees, provided the soil is in a mellow condition. In the case of stubborn clayey soils where it is cloggy, it would be best to leave planting until early in spring. In the meantime the holes could be dug and exposed to the atmosphere, which would greatly improve the soil. When the ground is in a fit condition for planting, and the places for the trees are marked out, make holes about two feet square; then dig up the bottom and fill the holes up to the required depth the trees need, with soil from off the surface only. Never plant a tree deeper in the ground than what it has been in the nursery beds. Much harm has been done through too deep planting. Nothing can be more injurious, either in the present or future success of an orchard, than to bury the roots away from the influence of the atmosphere. When the tree is placed in the hole prepared, be careful to spread out all its roots as equally around the hole as possible, so that the tree when growing can derive the benefit of the soil all around it. Then fill in the hole to near the top with nice mellow soil taken from the surface and shake the tree gently so that the soil can get well amongst the roots. Tread lightly around the hole; be very careful to tread each corner well so that when the rain comes the ground will not sink

and form a basin for the water to lodge in and injure the tree.

The pruning of young trees should not be done when first planted, because we often get a spell of warm weather which forces the first buds to sprout if pruned when first planted. The heavy frosts which are usual at that season of the year would cut them back often destroying the leading buds. Pruning is best left till early spring.

Mulching.—It often happens, especially in these States, that an early dry spring comes and proves very injurious to newly planted trees. I would therefore recommend a light mulching of horse manure or grass, which would be of great benefit to the young trees, keeping the ground moist and cool during the summer; afterwards, it can be forked in around the trees, and become a further benefit to them.

Spraying For Codlin Moth.

Arsenate of lead is now acknowledged to be the best spray, as it seems to stick and last longer on the trees than the other sprays. The way to prepare it is as follows: boil 1 lb of arsenic and 2 lb of washing soda in one gallon of water for about 20 minutes; then put 7 lb of acetate of lead in a bucket with two gallons of warm water to dissolve. In using, take one quart of the arsenic liquid, and two quarts of the acetate of lead liquid, mix together and put into the cask of the spray pump with 80 gallons of water.

It was observed last season that an unusual large number of the codlin moth grubs entered the apple from the eye; and, later in the season, round the stalk. This could be remedied in a great measure by a thorough spraying just after the petals fall from the flower, and before the calyx closes up. This spraying should be done with a strong pressure from the pump. If the flower is examined it will be seen that the stamens stand up all round the calyx like a brush, and it requires strong pressure from the pump to force the spray into the calyx. A light spray does not penetrate the calyx at all, but merely damps the out-

side; therefore put as strong pressure as possible into the first spraying to make it effective.

As the period of blooming of the different varieties of apples and pears extends over a period of at least three weeks, it will be necessary, if good work is to be done, to make a note of the varieties that are in bloom at the same time, so that the spraying can be done just at the right time. Many growers wait till all the trees are done blooming before they spray, with the result that the first spraying does very little good. Always spray on time for the first spraying with the different varieties; much better work is then done, as the destruction of the grubs at this stage means a considerable reduction later on.

All cases used about the orchard should be collected and scalded in boiling water to destroy any grubs that may be harboring in the joints of the cases; or they should be put into the fruit room and the room kept continually closed so that the moths when they hatch may not get into the orchard. The moth commences to hatch the first week in October, and continues till the first week in January, before the first brood are all hatched. It is during the first and second week in November that the greatest number of the moths hatch, so that if the first spraying about the middle of October has been effectively done, the second spraying can be done the second week in November.

Science is said to have discovered a new use for pears. White spirit is extracted cheaply from them, and the residue is said to make good cattle food.

In the battle which has been waged against the water hyacinth, which chokes up many of the rivers in the southern part of the United States of America, and is also becoming a nuisance in parts of Australia, the matter has been complicated to a serious degree by the fondness which cattle exhibit for this plant. It is almost without food value, but there is something about it which attracts the animals, and they have been known to be lured to death in the efforts to secure the hyacinth.

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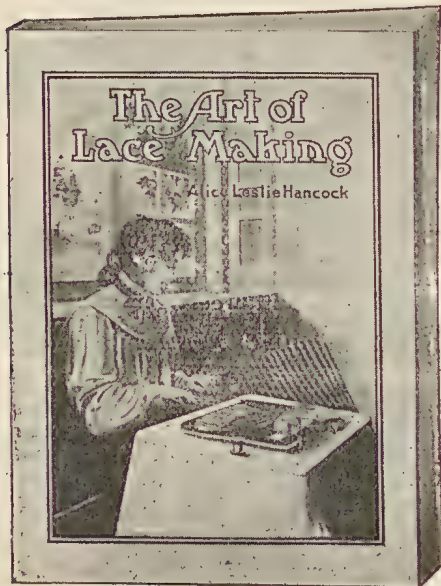
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Function Of Bees In Fruit Raising.

In my earlier days, when I was as much an enthusiastic horticulturist as an apiarist (says E. Kretchmer, in the 'Canadian Farmer'), I conducted many experiments and made many observations. I found that during the blooming of fruit trees, should the weather be too cool to permit bees flying, an imperfect crop was the result. Believing that the cool days might be the cause of the imperfect fruit rather than the absence of the bees, I investigated a little further in the succeeding years, when it was pleasant weather for the bees to visit the flowers, by covering certain parts of blooming trees with wire cloth or netting to exclude the bees, yet to admit the free access of all pollen carried by the winds, and in every instance the limbs and trees thus covered produced either no fruit or only a few imperfect specimens. After repeated experiments, it is my candid opinion that without bees our fruit crops would be reduced fully 90 per cent. Not only is this true of the fruit of the orchard but likewise of berries and certain vegetables. As an example, let me cite

the case of Senator Smink, of Rocky Ford, Col., who raises melons in fields miles in length. Years ago he was afraid of even the hum of a bee. His melons were then raised in several separate fields one of which was in reach of the bees of a neighbour, with whom he had several stormy arguments, saying the bees carried away all the substance from the blossom, and a crop failure would be the result. But, to the surprise of all, that particular field yielded over 200 per cent more and far better mellons than any other field. To-day he owns over 1,500 colonies of bees, and during the trans-Mississippi exposition he remarked that he would keep those bees if he did not get a pound of honey, for no bees means no melons. The idea that the bees carry away the substance from flowers was believed by an owner of an orchard near Frind, Neb., and to prevent it he sprayed during the blooming of the trees, with paris green, thus killing every bee that alighted on a blossom. It was effectual in preventing the bees from carrying away the substance from the apple bloom and it was just as effectual in depriving him of a crop of apples, while his neighbours had an abundance.

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THE FARM.

Diseases of the Skin.

(Continued from last Issue.)

S. S. CAMERON, M.R.C.V.S., Chief Veterinary Officer, Melbourne in the Victorian "Journal of Agriculture."

NON-PARASTIC SKIN DISEASES.

Nettle-rash or Urticaria.

This acute affection of the skin is manifested in the horse, dog and pig. In the latter animal it has been taken for swine fever on account of the skin lesions, but on observation for a day or two such a mistake is excusable.

Symptoms.—The characteristic symptoms are manifested very suddenly. There may or may not be a preceeding itchiness. The skin becomes covered with elevated 'blebs' (vesicles) or boils exactly resembling those produced by a nettle-sting (urtica—a nettle.) The skin of the neck and shoulders is usually first affected, then that of the back and buttocks. The boils vary in size and may coalesce forming blotches or raised patches the size of a man's hand containing a watery or serous fluid. The hair on the elevated parts is raised and when the hand is passed over the surface of the skin a 'hobnailed' impression is felt. As a rule the symptoms subside as

rapidly as they appear and in the course of a day all is well again.

Causes.—Nettlerash frequently occurs on abrupt change of diet especially in gross or full feeding animals, indigestible or unusual food is a common cause. In man the eating of fish sometimes precipitates an attack. The disease also occurs along with catarrh, jaundice or other derangement of the digestive tract. In all these cases it is probable that the condition arises from irritation of the skin from abnormal substances circulating in the blood which have been absorbed from the alimentary canal. A sudden chilling of the skin when the body is over-heated often results in the development of the disease. In this case it would appear to be not so much due to the irritation of the skin by cold as to the retention of injurious substances in the body under the influence of cold which would otherwise be eliminated by the skin or excretory organs.

Treatment.—A laxative saline drench should be given and usually this is all the treatment required. If the irritability of the skin is excessive the prussic acid lotion recommended for itch may be given.

Warts or Angleberries.

The so-called warts or angleberries which affect horses and appear as nodulated masses on the skin of the inner aspect in the region of the thighs and arms, and on the nose and face are really fibroid tumours contained in a capsule out which they may be easily 'flipped' on incising with a sharp blade. In some cases on account of surface friction they become sore and ulcerated on the surface and the contained tumour or 'kernel' becomes grown to the skin by productive

inflammation. In these cases the most effective treatment is to tie a tight ligature round the base and allow them to slough off. When the base is diffuse so that it will not hold a ligature the growths may be removed by dissection with the knife or by the application of strong caustics or the hot searing iron.

(To be Continued.)

The Shape of Horses Feet.

A level surface is not the only aim a farrier has to keep in mind; it may be produced with such exactness that a level shoe rests on it perfectly, and yet the hoof may be altogether out of proportion. Both sides of the hoof must be left at the same height, and if the sides of a foot when it comes to a farrier be of unequal height, it is evident that one side must be reduced more than the other to obtain a proper form. Again, it is clear that if the foot be level on both sides, a man may rasp away more horn from one part than another, and so cause a disproportion. Carelessness in the use of the rasp frequently leads to unevenness of the bearing surface.

From the position in which a foot is held on or between the knees of a farrier, some portions of the hoof are more easily reached with the rasp than others. The left foot suffers by over reduction of the outside and inside toe, the right foot at the inside heel and outside toe. A left-handed man is liable to injure the feet in just the opposite positions. It is equally possible to over-lower both heels or only the toe. Even when the surface is quite even from heel to toe on both sides of the hoof, the foot may remain disproportionate. The heels may be left too high, or the toe too long and the proper adjust-

V I C E R

Serves

ment of these two extremities of a hoof is the most difficult and most frequently neglected part of the preparation of a foot. The great cause of difficulty is the fact that horses' feet are not of definite form, and that much harm may be done in attempting to carve a foot to some ideal standard.

Some feet have naturally high heels, which can only be reduced to a shapely pattern by weakening their structure. Some feet have naturally low heels, and some have long toes, which must not be interfered with. As a rule, when the overgrown wall is reduced to the level of the sole, very little more horn need be removed. The effects of lowering the heels are to lengthen the bearing surface backwards, and to increase the slope of the wall in front.

Too much horn at the heels tends to straighten the foot and lift the frog from contact with the ground. It is always desirable that the frog should touch the ground; but when it is wasted to attempt to let it down by overlowering the heels should be made. When a hoof is excessively sloped in front, and the toe long, it would be injurious to shorten the toe by rasping the under surface of the foot. Such a hoof is properly treated by directly shortening the toe with a rasp applied to its border.

When a hoof presents broken horn on the lower border of the wall it is necessary not to allow a shoe to rest on it. Broken horn cannot support weight, and when it yields may cause injury to the sensitive parts and always cause shoes to become loose. Broken horn should be removed, unless it can be left in a position offering no bearing to the shoe. When a foot is insufficiently covered with horn, either as a result of excessive wear from

work without shoes, or as the effect of previous removal by a farrier, great care is necessary to produce the best bearing surface. As a rule, the quarters of a foot are most broken, and the heels may be trusted to take most bearing.

Given briefly, the rules for preparing a foot for shoes are as follows:—With a rasp form a level bearing surface for the shoe from heel to toe; keep both sides of the hoof the same height; see that the length of the toe and the height of the heels are proportionate; let the frog and bars alone; remove from the sole only such portions as are loose or may receive undue pressure from a level shoe; finally run the rasp lightly round the circumference of the hoof, so that no sharp edge be left, which is useless to support weight and might be broken.

The above is from an instructive chapter on 'Preparation of Feet for Shoeing,' in 'The Horse: Its Treatment in Health and Disease,' edited by Professor Wortley Axe, M.R.C.V.S.

An Odd Agricultural Implement.

What is apparently one of the most primitive methods known of cultivating the land is to be found in common usage in a European country—in Biscay, Northern Spain, where the plough is apparently unknown. The implement employed in this cultivation and the method of its application are described by M. Main in a late number of the 'Journal d'Agriculture Pratique,' as he saw it in work during a tour through Spain. The implement is a two-pronged fork of a peculiar shape. Altogether the implement is about three feet long, the

prongs of the fork being six inches apart, and a little over 30 inches long. The implement is bent at an angle of 30deg. to the direction of the prongs, and is furnished with a rough wooden handle. In using the fork the angle of the handle is away from the worker. The work is usually done by from two to six persons—usually women. They stand in a line, and each using two forks raise them above their head, and drive with some force into the soil, the operation being repeated twice till a depth of about seven inches is reached. Care is taken that the forks are driven into the soil about six inches apart. On the proper depth being reached the forks are worked backwards and forward, till a long strip of soil is loosened, and it is then turned completely over. The operators then step back and attack another strip of soil which is treated in the same way, and so on, till the end of the field is reached. They then return to the point of commencement, and attack another strip of soil in the same way till the whole field is completed. The work is done quickly and so evenly that it is difficult to see any break in the continuity of the strips of over-turned soil. Though M. Main is an agricultural engineer, he does not give any notion of the yield of crops obtained by this method of cultivation, nor does he say if harrows are used on it.

Bones are bones, thought a farmer at Montpellier, France, so he ransacked a deserted cemetery to get bones for his farm. He was caught in the act, and his own bones were nearly broken by his neighbours.

That farmer prospers only who feeds his soil. Are you prosperous?

O Y T E A

You Right.

Burning-off Grass.

A correspondent writes for suggestions on the good or evil of burning-off grasses. This is one of those scores of country questions so easy to ask, and so difficult to answer. All is dependant on particular conditions. Writers who attempt to lay down hard and fast rules in response to queries sooner or later make fools of themselves. Perhaps on this particular question, one cannot do better than quote from Mr. Fred. Turner's excellent work on 'Australian Grasses.' He says:—'I am in favour of burning off annually, under three such conditions as the following—First, where grasses and other herbage are much diseased with parasitic fungi; second, where there is a predominance of 'spear,' 'corkscrew,' 'wire,' and 'three-awned spear' grass, and, third, where rank growing grasses are abundant, which is generally on wet or undrained land. For along with this coarse growths many noxious plants and fungoid pests are destroyed. Pasturage treated in this way becomes more healthy, the fire acting as a disinfectant, and contagious diseases disappear.' Of course burning may easily be made expensive by the destruction of valuable seeds and of edible timbers. But judicious burning is often of great value in the prevention of suckering. The suckers caught young every year or two are held in check, where if they got a start they would cost a lot to wipe out. It is interesting to notice that the blacks used to burn the country very freely before the whites came to Australia, and so make improved pastures for the kangaroos and wallabies, they wished to possess. Large areas in Tasmania, which are now overgrown with bush, were a hundred years ago clear, open forest, and the change has been directly traced to the discontinuance of the annual fires by the rapidly-dying aboriginal people. In New Guinea to-day the natives still burn to make their hunting grounds more attractive.

Depth of rib, together with the well-sprung rib of a wide horse, means heart, lung, and digestive capacity.

Cultivation of Legumes.

It is evident that the value of legumes on a farm is not yet fully realised. Lucerns, where it can be grown, has always proved itself superior to other fodders for both milk and fattening, and on a few farms cow grass or red clover has given good results as a substitute for the longer-lived crop. Few farmers whose land will grow lucerne fail to make use of a portion of their area for that fodder. But those whose land is unsuitable as a rule confine themselves strictly to wheat or oats for hay. Where there is much stock-feeding to be done the most economical plan of working is to have a stack, even if only a small one of some leguminous crop to feed with the bulkier hay. Probably the advantage of a mixed ration will never be impressed upon farmers until the improvements have been demonstrated by local experiments. When such will be undertaken by the department no one can say. In the meantime it is unlikely that any great advance will be made in feeding methods. One kind of hay is regarded as being as good as another, no matter what its composition. The one great drawback is that growers are frequently restricted by the climate to one or two species, and when it is an annual that has to be grown a difficulty at once presents itself in the curing of the crop. A wise alternative, in such cases, is to dispense with hay, and convert the crop into ensilage. It can subsequently be fed with oaten or wheaten chaff, and the effect of the mixture is an improvement in quality. Where cow grass can be grown hay-making is an easy enough matter, but with any of the fodder peas or beans, ensiling will be found the best plan.

There may be a profit in keeping a poor animal, but there would be a greater profit in keeping a good one. How much more does it cost to feed a sheep that shears 12 lb. of wool than one which clips only half that amount?

The sore shoulder in horses is usually caused by the dirty collar.

Miscellaneous Items.

Desirable qualities in a herd are fixed by a long line of careful selections and breeding.

Two important factors for the brood sow are proper food and plenty of exercise.

Learn to judge the build of a good horse, what points are favourable and why. Good horses are needed on the farm as much as any place.

Clover is a very valuable feeding crop, because it contains so much of the element of protein, which is the element in reeding crops that costs the most.

All stock on the farm soon tire of their ration if fed exclusively on one class of feed. A variety stimulates the appetite and is more palatable, and the stock get more nourishment from the food.

It is said that the real worth of anything is just what you could get for it. That may be the market value, but there are many things on the farm in the way of a good animal for which we could not get the real worth.

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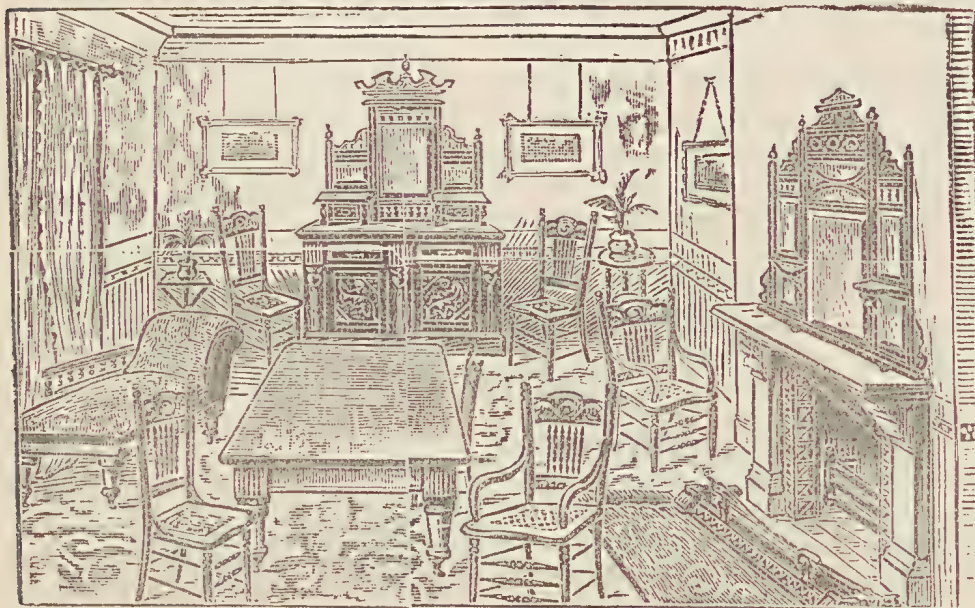
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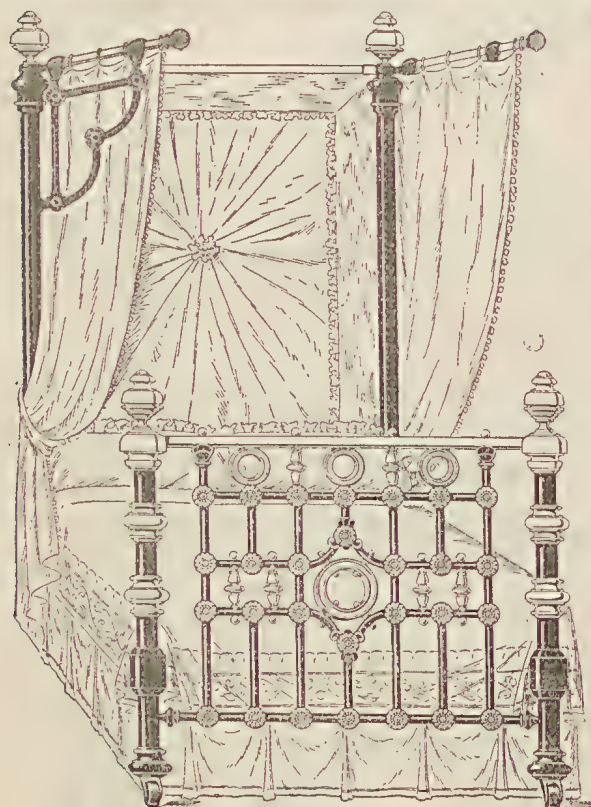


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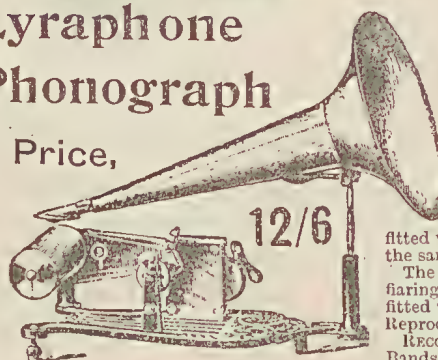
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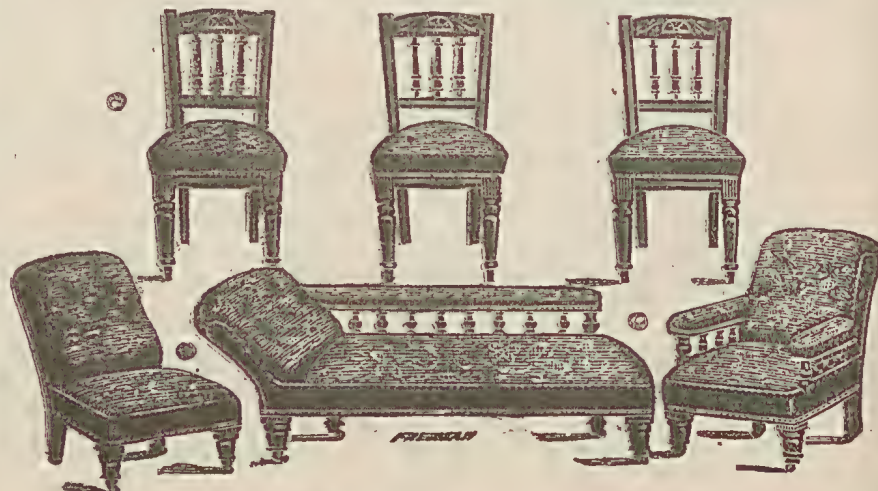
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The Dairy

Feeding Milking Herds.

H. R. ALEXANDER,
in 'Agricultural Gazette of N.S.W.'

With the exception of the cows of town and suburban dairymen, the feeding of dairy cattle has not so far received the attention it deserves.

Every year out dairy farmers are becoming more convinced of the advantages to be gained by growing and conserving sufficient fodder at least to carry their stock in fair condition through the winter and dry summer periods.

Nothing could be more disheartening to the dairyman than to see a fine spring opening out, and his cows too low in condition to allow of the responding at once in milk with the new growth of feed. When grass becomes plentiful the poor cow takes some considerable time to come properly on in her milk. This means a falling off in cows' milk yield for this particular lactation period. Further, a cow in low condition is liable to go down under a too liberal supply of fresh young grass.

On the other hand the fed animal being in good heart and having no condition lee-way to make up, increases at once in her milk flow with the spring grass. Knowing this, the farmer should feed not only his milkers but the dry cows as well.

Under our New South Wales dairying conditions the farmer must regulate his cows and fodder crops to suit his particular district. The cows should be bred so that the majority are at full profit during the period at which, on the average, it is found feed is most abundant.

the balance of herd could then be bred to calve at intervals throughout the year.

To maintain a reasonable milk revenue at the period when the majority of cows are dry, say June to August, a good plan is to have all heifers replacing culled cows bred to calve at this time of year.

By so doing, milking being slack, the heifers can then be broken in, and the udders attended to, &c., without unduly upsetting the yard routine. These heifers would not be again bred to bull till November or December, and would then work in with the main herd. To allow of economical management this regulating of dairy herd is advisable; less fodder is required to feed dry cows than milkers. Further, a small, comparatively freshly-calved lot of cows can be given every attention, an abundance of feed, and be made to milk heavily right through the winter without the farmer incurring any additional labour expenses.

In the lower South Coast grass feed is found to be most abundant from September to December. During January and February, having seeded, grass is usually somewhat dry, and failing good rains to stimulate a fresh growth, the milk flow will show a considerable shrinkage, unless the cows' feed is supplemented with some green fodder.

The South Coast farmer should, by growing crops, prepare for feeding his dairy herd from January, and to continue from then, if need be, right through the winter months. On the best managed properties a regular supply of green fodder could not always be maintained even during very favourable seasons. There would always be a break between the summer crops of maize and sorghum and the winter crops of oats, &c.; the gap between winter crops and spring grass would also call for attention.

To tide over these or other bad periods preserves of fodder are necessary. Stacks of oaten, lucerne, millet or meadow hay, and silage made from any of the crops already mentioned, should be on every farm.

Of all crops suitable for dairy-cow feed

lucerne and maize are the best. While maize flourishes on the South Coast, lucerne is only grown on isolated places, and in many instances with indifferent success. Lucerne hay is the ideal concentrated food for the dairy cow. Lucerne, fed in conjunction with either green maize or silage, makes practically a complete, home-grown milk-making ration.

Every dairy farmer having a suitable piece of land would profit by growing a few acres of lucerne.

To have a regular supply of maize and sorghum for cow-feeding from January, begin early in October by sowing a section of paddock sufficiently large to feed milking herd for one month, sowing as seed in this case one of the early maizes, such as Ninety-day or Early Leaming. Follow up this sowing at an interval of, say a fortnight, with another section of paddock, using in this case seed of Hickory King, R d Hogan, or any other tall growing maize.

Also sow at this time the main crop of corn for ensilage making.

Another sowing of maize could be made towards the beginning of December. From December to January, a suitable piece of land being available, as a catch crop a sowing of Ninety-day maize would, provided frosts held off, give a good cutting of green feed by April; this crop could be off the land in ample time to allow of ploughing and sowing for late crop of barley or oats.

During spring months two sowings of sorghum should be made. Sorghum grows slower than maize, and though not so good a milk-making food, has the advantage of holding out after frost much better than the corn crop. Sorghum should come in as the fodder to follow maize. Amber Cane variety is good for early feed. Planters' Friend being the better winter stand-by, will cut fresh, though frost-bitten, well into June.

As there is always a risk of losing part of crop through heavy rains, it is advisable to either cut, bind and stook, or make into silage any sorghum required for feed after the month of May. Maize and sorghum yield enormous quantities of fodder to the acre, and are the South Coast farmers' principal siloing or en-

silage crops. Cowpeas are often recommended as a heavy yielding summer fodder crop.

In warmer localities cowpeas undoubtedly are valuable. On the lower South Coast the writers' experiences of this crop grown on good land were far from profitable.

For a summer catch crop Hungarian millet is a success, can be harvested within ten weeks of sowing, yields a fine flaggy hay much relished by calves and cattle; it also makes excellent silage.

For winter green feed, oats and Cape barley hold pride of place.

Of the varieties of oats, when a crop of hay is looked for, Algerian is the best, being comparatively free from rust attack. Tartarian is the better variety for actual green feed, also makes a good hay, but is very liable to rust.

Cape barley is relished as green fodder by stock; has no value as hay on account of the dangerous and disagreeable beard.

Rye flourishes better on poor country than oats or barley. As a green feed stock eat it readily; has no value as hay. When oats or barley receive a fair start, and are fed off when from 8 to 10 inches high, as many as two, and, during very favourable seasons, three feedings can be got from the one sowing with an additional ton to the acre crop of hay from the oats.

When cut with a scythe or mower, oats or barley die out during frosty weather. If a subsequent feeding or hay crop is desired, cows must be allowed to do the mowing by grazing.

In feeding off allow the milkers from an hour to an hour and a-half every morning on the crop. Some farmers herd the cattle while grazing, confining them in rotation to certain sections of crop.

This had better be done when paddock has been sown at intervals of a week or a fortnight, the green stuff being more advanced in growth on the early-sown portions of the field. When crop is all of one sowing and growth the cows may be left to themselves for the usual hour; they are too busy feeding for this short period to wander far and trample under foot much of the green stuff. Cows fed in this way, and given a reasonable

allowance of hay at night, will freshen up wonderfully in their milk.

Oats being a soft bulky food, cow rations needs building up with a more concentrated fodder. Hay assists in regulating the bowels, thus preventing scouring, and in a way balances the ration.

In the winter crops can be sown from March to May, and for early spring feed as late as June.

To obtain best results when feeding cows it is advisable to chaff and feed all fodder from troughs. In feeding chaffed ensilage troughs are absolutely necessary. When cattle are fed in this way their allowance of ensilage, maize or sorghum can be balanced up to a full milk making ration by the addition of concentrates, in the form of lucerne, oaten, or meadow hay, bran or oilcake as the case may be. To obtain best results from a milking cow this balanced ration is necessary.

A cow may be given as much ensilage as she can eat and still not be milking up to what her average would be if running on good grass.

Ensilage, green maize, or sorghum are the bulky cheap appetite satisfying foods, but are deficient in protein—the necessary milk making element.

To get this protein for a heavy yield of milk from say ensilage, the cow would have to do the impossible and consume perhaps twice the weight of fodder she was capable of eating in the twenty-four hours.

To balance the ration the feeder reduces the bulky food, substituting an equal weight of the more expensive concentrated article and keeps on adding this food rich in protein and reducing the bulky, while the cow responds by increasing in her milk flow. When this point is reached no further addition of expensive fodder would make the cow milk any better.

During winter and dry spells every farmer should endeavour to feed his fresh milking cows a balanced ration. This ration is not needed in the case of dry stock or cows nearly dry, they can be kept in good condition when fed solely on ensilage.

By feeding ensilage or bulky food at night, and hay during the day, or vice versa, fairly good results will be got.

If possible choose sheltered hilly country for the feeding ground. Lay the fodder out in long thin lines; if dumped out in heaps, the cattle trample and spoil fully half the feed. Change direction of lines daily, this helps keep fodder clean.

By chain harrowing the manure on feeding ground during damp weather, dung is broken up, rubbish cleaned away, and the growth of grass on such places when spring sets in will be greatly accelerated.

Grow fodder, and in abundant seasons conserve the surplus. The days of dairy squatting are done. Good dairy country becomes dearer and more difficult to obtain every year.

To make ends meet the farmer must get more milk from his cows; this can only be done by feeding.

Cow With Four Calves.

Mrs. T. Finn, Edenholme, Harden, New South Wales, writes to the 'Australasian':—'I send you particulars of an instance of fecundity in a cow that I think must be nearly a record. On the 25th ult. a three year-old cow of mine gave birth to four calves, all well grown, perfectly developed, and apparently fully matured, although the cow was not due to calve for another 21 days. The cow is a Jersey-Ayrshire cross, the sire of the quartet being a well-bred Jersey bull. The calves had been born alive, but owing to the very cold weather, and the cow choosing a very damp gully to calve in, and the fact that almost two days elapsed before being found, they all died. There were two bulls and two heifers; the united weight of the four was 114lb. The cow had one calf previously. She was in rather a bad way for a few days, but is recovering. I have had a long experience amongst stock, and have never seen or heard of a similar number of calves at one birth, and neither has anyone of scores of people who have viewed the calves.'

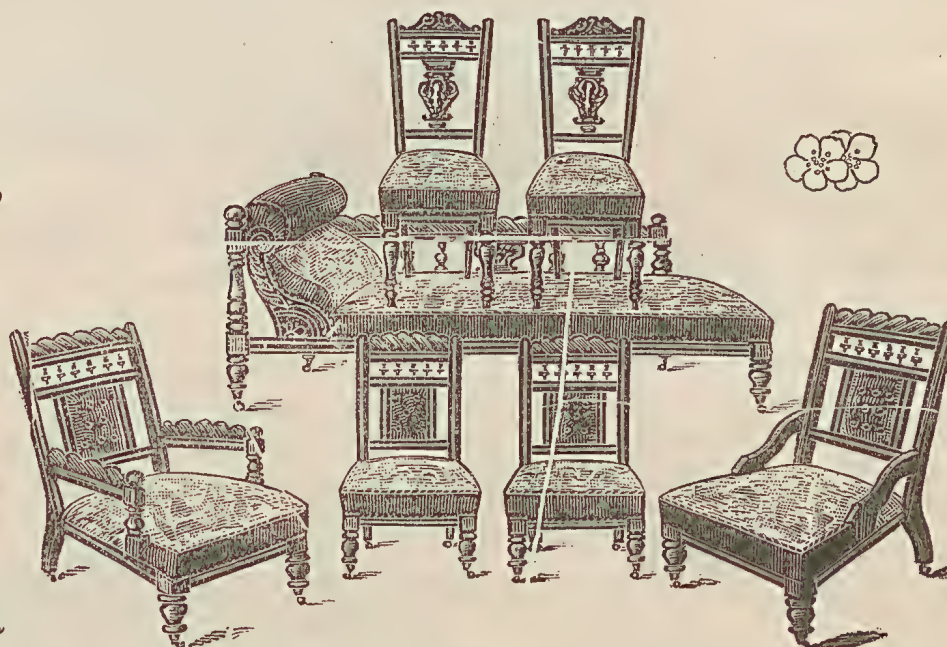
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The Young Folks.

Actions and Words.

Here's a sentiment worthy to keep in your mind
As you travel through life, for it's true you will find.
That you're not so much valued by what you may say
As by what you may do in a practical way;
For unless you perform what you say you can do
Grave doubts will arise that your's honest and true.
Though your voice may be sweet as the song of the birds,
Remember that actions speak louder than words.
Nor would I discourage the message that cheers,
Or the prayers, or the blessings of sympathy's tears;
They are always in order, they help in their way
To hasten the dawn of millennial day.
But a little more gold sandwiched in with your prayers
Would banish more tears and lighten more cares.
Though your voice be as sweet as the song of the birds,
Remember that actions speak louder than words.

Conundrums.

What is the difference between the bark of a tree and the bark of a dog?
One is the bark of a bough, and the other is the bark of a bow-wow.

What is the difference between a cow and a rickety chair? The one gives milk, and the other gives way.

Why is the centre of a tree like a dog's tail? Because it is farthest from the bark.

What is it that is round and sound, and just a pound, and yet does not weigh an ounce? A sovereign.

What is that which went to the North Pole and stopped there, and came away because it could not go there? A watch.

Why should a sparrow be offended if you were to call him a pheasant?—Because he would not like to be made game of.

If a king kiss a queen and a queen kiss a king, what public building in Adelaide will it represent?—The Royal Exchange.

When is a chair not a chair?—When it is a rocker.

Dreams.

PLEASANT AND UNPLEASANT.

By a Dreamer.

It's really astonishing what a lot of useful knowledge one can gain in the short space of a quarter of an hour. Just 15 minutes ago I was appallingly ignorant on the subject of dreams, and now—well, I'm merely crammed, I'm brimming over with useful information concerning them, and I can't rest happily until I've presented to the world some of my superfluous knowledge.

D'you fellows dream? What do you dream about? D'you want to know whether your dreams are lucky or unlucky? Then consult me! Eh? No! there's no charge. I've a little penny handbook on the subject, which is a mine of information, and this vast reference library is at your disposal at any time.

What are your favourite adventures in the Land of Nod?

D'you like to dream that you're doing wonderful things in the world of sport, or would you prefer to gain a 'V.C.' in some terrific struggle? Do you care to find yourself wallowing in luxury at a gorgeous banquet, or would you rather see yourself as a magnificent monarch? Are your chief interests centred on the sea, or do you prefer fame on land?

However peculiar may be your types of dream, a reference to my little book will tell you what they portend.

Like most good things in this world, however, the Dream Book, on close acquaintance, becomes a little disappointing, and one finds that most of the pleasant visions threatens dire disaster for the dreamer, while the very unpleasant ones often promise luck. I have, however, an important piece of preliminary information for my reader who is subject to dreams. Don't dream about food!

Most visions in which food occurs are interpreted very gravely by the 'researchers and philosophers' quoted in my volume.

Starting with popular delicacies, Sour Apples, I read that, if these are being eaten in a dream, it signifies much sorrow and unhappiness. Sampling sour apples in real life often has a similar effect. I wish to claim that I discovered this latter fact long before the publication of my Dream Book.

To dream of Bacon is even more unfortunate, for it denotes not only the death of some friend or relation, but in addition, enemies will endeavour to do you a mischief. So that if any of my Young Folks are in the middle of a dream about bacon, it would be decidedly advisable for you to switch your thoughts on to some other subject—even sour apples, though, if you can conveniently do so, it would be infinitely better to think of Barley Bread, for this 'betokens health and great comfort to the dreamer.'

You could, therefore, have quite a varied and comfortable time by starting your dream with sour apples, and winding up with a vision of barley bread, from which you would wake up with the knowledge that great comfort is in store for you.

D'you ever dream of eating Beans?

If so, don't do it again, unless you want quarrelling and discord to loom ahead.

Beef is equally unfortunate as a subject for a vision, as it portends the death of a friend—especially, I presume, if the beef happens to be of the 'tinned pto-maines' brand, and to hail from Chicago.

Beetroot is a safe subject, as it augurs freedom from trouble, while Cake and Cheese are equally satisfactory. A cake dream means profit and joy for you, while cheese indicates profit only.

As to Eating generally. To dream you see others eating is of very little benefit to you, but if you dream that you are asked to join the little party, and to partake of those things you like best, 'some relief, perhaps, will follow,' my book assures you.

So be sure, if you see a nice little supper party in a dream, to get an invitation, even though you have to bribe a waiter.

To dream of Leeks is 'a sign of poverty, if you are not careful,' while the eating of Lemons implies a 'severe and long-continued disposition, which will most likely prove fatal to the dreamer.'

The vision interpreter, in this instance obviously intended to write 'indisposition,' but to save any argument on the subject, we will decide not to dream of lemons, if you don't mind!

Dream of Puddings, by all means, for as a result, you will have a quiet life. But, don't let the puddings be made of rice; to dream of rice foretells 'abundance of instruction,' and the average boy, convinced that he has already quite enough to go on with, is not likely to be silly as to dream hard about rice in the hope that more hardships will be inflicted on him.

So you'll see that you can't be too careful in selecting the refreshments you sample during a dream, and I should advise the reader who wants to be certain of a very happy future to make a list of those foods which foretell all sorts of good luck, and commit them to memory.—'Boy's Own Paper.'

Oh, would I were a sailor bold!

Said Fluffy Chick, in boastful way,

'And on the back of Master Quack

He travelled o'er the pond one day.

'In this new sailor hat of mine

(Which suits my beauty to a T)

I look in just the very trim

To sail across the deep blue sea.'

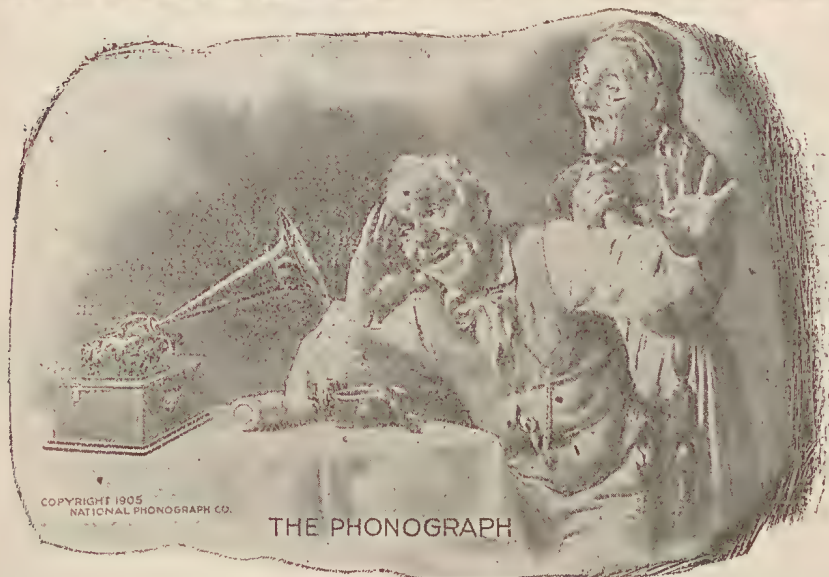
Said Master Quack, with knowing look

('Twas really rather smart of him!')

'Before you are a sailor bold,

I think you'd better learn to swim!'

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The Poultry Yard

Rearing Chickens.

Before we attempt to rear chickens we should see that we have the parent birds in perfect health; if the parents are not in good health we cannot expect to rear strong chickens from them. All birds used for breeding purposes should be descendants of strong, vigorous stock; that have never been tainted with roup or other contagious disease.

A well-known physician, when asked when a child's education should begin, replied 'twenty years before the child is born.' With equal truth we might say that a chick's constitutional vigour should be looked to months before the egg from which it is hatched is laid, which is another way of saying that most of the weakness and want of vigour in 'weaklings' is due to preventable causes, and that an 'ounce of prevention is worth a pound of cure.'

The person who would succeed in rearing chickens must commence with sound, healthy birds to breed from, and should feed them so that they will produce good fertile eggs. It is a waste of time and expense to try and breed healthy chickens from parents that are tainted with diseases, many of which are hereditary, and are handed down to their progeny, which come into the world affected or so delicate that it is useless to try and rear them.

Breed from healthy parent birds, never neglect them at any time, and their offspring will give you pleasure in the rearing of them besides a handsome

profit when you sell them for all the care and management you spent on their parents.

A mistake often made is that the rooster is not considered of as much importance as the hens for producing good laying chickens. The male bird should not be overlooked in this connection, for unless you have a rooster from a good laying strain at the head of your harem your chickens will not be good egg-producers. Another matter that should not be over-looked, and that is, to be certain that the rooster is a good healthy bird; if not, the eggs will be uncertain, and what chickens do hatch will be 'weaklings.'

The chickens when first hatched want just leaving alone—should be left undisturbed with the hen from twenty-four to thirty hours. This enables the little chick to assimilate the yoke of the egg that it has drawn into its body before it makes its way out of the shell. Nature supplies the chicken with this rich and nutritious food, and if we feed the youngster before this natural food is assimilated and properly digested, we spoil the digestive organs, and wreck that chick's chance of ever becoming strong and well-grown.

Most people are in too much haste to feed the young chicks, and it is surprising how many are ignorant of the facts just mentioned. As I have said, they must be left alone with the hen for the first twenty-four or thirty hours; after that time the hen and chicks should be taken from the nest and cooped on dry ground, or on a clean sanded floor which should be perfectly dry at all times.

Shelter from rain and heat are great aids to chicken growth. Just erect a rude shelter, and try the scheme of giving the little fellows a protected square yard of ground. A little observation of how much they enjoy it will convince the most stubborn doubter of its benefits. It is very easy, with a few odd pieces of boards, a couple of stakes, a cross-piece, and a few bushes or bagging, to make a royal shelter for a flock, and the reward in health and added pounds of meat will be substantial.—'The Farmers and Fruit-Grower's Guide.'

Guinea-Fowls.

Guinea-fowls are not commonly seen in Australia, and around Adelaide, where in years gone by their appearance was not uncommon, they are rarely seen now. These birds are said to be very fine for the table, and it may be hoped that something will be done to make them more popular. In 'Farm, Field, and Fireside' the following appears, which may prove instructive:—'Guinea-fowls are profitable where they have plenty of room to search for insects, worms, &c., and no one should attempt to keep these birds entirely in confined runs, as it is against their nature altogether. When reared on a farm they will get most of their own living, particularly after the corn is carried, for about two or three months. The young birds are delicious eating, and have very plump breasts, and we consider a brace of young Guinea-fowls well roasted to be only inferior to pheasants. Guinea fowls should always sleep out in trees—it is their nature to do so, and when they are allowed to sleep in the fowlhouses, as a rule, they are very quarrelsome indeed, and will often clear the perches of the hens, in many cases pecking and blinding them. It is, therefore, much better to allow them to sleep out; if they do, they will lay quite as early in the spring as when kept under any other circumstances. When thus kept they act as a guard, invariably giving warning when strangers are about.'

Fattening Poultry.

In referring to the subject of feeding, 'Farm, Field, and Fireside' gives the following information as to the methods adopted for the preparation of birds by the English fatteners:—Now as to the methods adopted by those who are in for fattening chickens. The age of the chicken varies from two to four months old, larger number being about three months old when they are put into the coops. Older birds are fattened also, but they do not make proportionate progress.

The coops required are those which stand on legs, and have bars across the bottoms with two of the bars in front made to slide up so that the birds can be easily removed when they come to the 'cramming' stage. Four weeks is the time usually allowed for fattening; the food is put into troughs in front of the coops during the first fortnight, and after that the birds are 'crammed' for another fortnight.

The length of time varies with the season of the year, and the condition of the birds. As a general rule, four weeks is ample for chickens which have Orpington and Dorking blood in them, and which are in good condition when placed in the coops. During the first fortnight the fowls help themselves to their food without any trouble; but by the end of this time the confinement begins to tell upon them, and they would eat much less if they were allowed to follow their own inclinations. This confinement relaxes the muscles of their legs, and they have therefore in consequence a tendency to that tenderness of flesh so much desired in table poetry, which is in direct opposition to the condition young fowls are found in when they have their full liberty, this tending to make them muscular rather than fleshy.

The food used for fattening poultry is ground oats and skim milk principally. This is mixed thinner as the process goes on. During the time that the fowls help themselves to it they should have it thicker. Many people successfully use suet and rough fat from the butcher's mixed with the ground oats and milk. The suet, &c., is boiled and put in warm milk, which is then mixed with the ground oats. It is very essential that the food be perfectly fresh, and that the birds are kept quiet and dark. They are then more inclined to put on more flesh.

On Saturday, Oct. 17th Mr. Martin, of Islington, called at 'The Advertiser' office with a huge egg, which was laid at mid-day on Saturday by a Buff Orpington hen. The egg turned the scale at 5½ oz, and on being broken open it was found to contain an ordinary sized egg inside, with shell fully developed.

Interesting Notes.

Other things being equal, the fresher the egg the stronger and better the chick.

Early-hatched pullets are equivalent to early winter layers. It is high time to get busy.

A duck belonging to Mr. Taylor, of the Duke of Brunswick Hotel, recently laid an egg weighing 5½ ozs which contained a complete egg, together with the yolk and white belonging to the larger egg.

Stagnant water, which has been exposed to the sun, will often bring gapes on, not only in chickens and turkeys, but also in young birds of flight, after they have left their nest and drink stale water.

Busy, hustling hens mean contented, thrifty hens that are not in an over-fat condition; and that is the kind of hens that produce strongly-fertilised eggs.

The custom of selling off the old hens because they are a little heavier than the pullets of the previous season is a great mistake as young chicks from pullet eggs are never as hardy as those hatched from the eggs of mature hens.

The poultry-house, nests, and roosts should to receive attention to combat with the insect pests. Owing to the material with which houses, &c., are made the insects find an easy lodgement, and their supper comes home to them when the fowls take to the roosts. Hens infested with vermin will not be profitable, so that a pest-free house is not merely a desideratum, it is a necessity.

To keep a poultry house clean a bucket of hot suds, into which half a cupful of phenyle or kerosene is mixed, is very useful. Before using the liquid, take out perches, nests, and the debris from the house, and then with a garden syringe give the inside of the house a thorough dressing with the liquid. This operation should be done each week, but if the house has been neglected for some time, two or three syringings in one week will not be too much.

Males belonging to the Leghorns or some similar breed are, other things being equal, capable of looking after a greater number of hens than a male belonging to the American or Asiatic class.

The warm weather, which appears to be now setting in, should make poultry-breeders very careful to guard against the insect pest. Hens that are brooding breed these insects rapidly, and in great numbers, so that the breeders who do not take proper precautions frequently, find the hen forced to abandon her nest and leave a clutch of eggs about three parts incubated. This is a great loss at this season, for the time is slipping along when the best chickens of the year can be bred.

The nesting place for a hen at this season is best on the ground. A place there can be scooped out, and two or three bricks placed around the nest, which can be made of grass or straw, and the eggs placed there. Each week the nest, after removing the hen and eggs, should be burnt clear out, and a fresh lot of debris placed to receive the eggs. Unless this constant attention is given the hen, nest, and eggs will be over run with vermin, with the most inevitable result of an abandoned nest and a clutch of eggs ruined.

The ventilation of fowlhouses is a matter of great importance. Poultry can stand cold, but they cannot stand a putrid atmosphere, and that is what some poultry-keepers treat their fowls to. The open front, with the roosts placed well back in the house, is very suitable for this country, and the front should face the east. Therefore, in building a house a good depth should be given. The roosts should not be nearer than 6ft. from the front of the building. Those who have had no, or but little experience of fowls should also give attention to the placement of the roosts from the ground. They should all be on one level, and not more than two feet high. High perches are frequently the cause of rupture of the egg-bag and the trouble known as bumble-foot.

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'A.Y.Z.'—Your letter is too personal for publication in this journal.

'B.H.' Parkside—An article devoted to the tomato will be found in another page. In it you can find the information desired.

'Amateur'—1. If a cow is 'springing' her general appearance will show it. In addition to the enlargement of the abdominal region, the udder and teats will be distended. It is impossible to tell by a merely superficial examination how far forward a cow may be. 2. The average periods of gestation are as follows:—Mare, 340 days; cow, 283 days; pig, 112 days; ducks, 28 days; turkey, 28 days.

'Tomato.'—When packing, the fruit should be graded according to size and likeness, all in each package being as near as possible alike, the grading should be something like this;—1, large ripe fruit; 2, small ripe fruit; 3, large medium ripe; 5, large green fruit; 6, small green fruit. The fruit will thus look better, sell better, keep better, and pack or travel better, whilst the arrangements will be found advantageous to the buyer and more profitable to the seller. Culls should not be marketed, but fed to pigs or destroyed, as other refuse fruit.

'C.M.' Kent Town.—The complaint is undoubtedly chicken pox and should be promptly treated. Of itself the complaint is not necessarily fatal, but the pustules on the face and comb spread and attack the eyes. Then follows blindness, and consequent starvation. As a cure mix together vaseline and flowers of sulphur, and rub the affected parts with it. Young half-grown fowls are the usual sufferers. Sometimes, however, the disease gets hold of the adult stock. The complaint is very contagious, and the fowls in the general flock should be carefully watched for outbreaks. Isolate all affected birds.

'Cabby.'—The colt wears the hind toe down by striking the heel of the fore shoe. This can be prevented by making the foreshoes taper off in thickness towards the heel, the extra weight at the front serving to make the animal throw out his forefeet, as the weights do. The shoes should be, say, 7-8 in. wide, and 3-8 in. thick, half way round, and bevelled at the inside curve. The back half should not only taper as a wedge, but the width of the iron should narrow to about 1-2 inch at the heel. This construction leaves no heel surface for the hind toe to strike, while the bevelling at the inner curve also does away with any iron face that can be reached in over stepping. Should the trouble continue, add 3 oz toe weights which will cause the colt to throw his front feet out still more freely, thus escaping the hind ones.

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December Number of

1908

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry).

CONTAINS—

Illustrations—

Cineria Hybrida Grandiflora
Group of Bouvardias
Newest Hybrids Chrysanthemum
Blue Water Lily
Group of Daffodils
Group of Narcissus
Giant Auvergne Cabbage
Brown Spanish Onion
Canadian Wonder French Bean
Rollisson's Telegraph Cucumber
Large White-ribbed Sea Kale Beet
Prickly Spinach
Sandringham Celery
&c, &c., &c.

EDITORIAL.

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The Rubbish Heap
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Celery

Flower Garden—

Notes for the Month
Daffodils

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The Young Folks—

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ANSWERS TO CORRESPONDENTS.

WIT AND HUMOUR

The Poultry Yard—

Diseases of Fowls
How to Increase Egg Production
Poultry Brevities

BUSINESS NOTICES

EDITORIAL.

"THE AUSTRALIAN GARDENER" for December supplies its numerous readers with a large amount of practical and interesting matter. Special care has been taken in compiling the pages devoted to instructions for the work to be enacted in December, both in the vegetable and flower garden. As the dry days of summer appear, amateur vegetable growers will find it to their own particular advantage to note closely the order of things if they wish to keep the kitchen well supplied with dainty foods for hot weather. We have also devoted a page to the cultivation, history, and various uses of the indispensable celery plant. The sun's scorching heat is sure to bring many disappointments to those who endeavour to beautify their homes by the cultivation of flowers, but while these are always to be reckoned with there are flowers that bloom and

thrive under the fiercest rays of the sun and revel in heat with proper attention, and these are dealt with under the head of "Notes for the Month," together with seasonable illustrations. The flower we have specially dealt with in this issue is the Daffodil, the most popular of all English plants, seeds of which may be planted at once. The farmer, dairyman and orchardist will find that they are by no means forgotten in this number. The orchard is just now beginning to return to the laborers their well-earned fruit, and the demand for fruit-pickers exceeds the supply in the Hills districts. The cherry crop this year is a large one, and this fruit is already being retailed here at one penny per lb., which, by-the-way, does not speak highly of the grower's remuneration. In view of Dr. Johnson's questions in the City Council last week re pasteurisation of milk in Adelaide, the article entitled "Milk and Death" will be read with interest. Poultry-keepers

find food for thought in the suggestions on "How to Increase Egg Production" by Mr. Brooks, of Clarendon.

The increased demand on our space and our rapidly increasing circulation has caused the "Australian Gardener" to make phenomenal growth during the last twelve months—from 20 to 44 pages; and the management are at present considering a further enlargement of this journal.

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to
His Excellency



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Corner Flinders and Hyde Streets, Adelaide.



GIANT AUVERGNE CABBAGE.



BROWN SPANISH ONION.

The Vegetable Garden.

Operations for the Month

This is one of the most trying months of the year for gardens, and there is often some difficulty experienced in raising good vegetables, especially when dry, hot winds occur. There should be no difficulty for farmers and others who keep stock to provide a plentiful supply of material suitable for a mulch in the droppings of animals, straw, and dead leaves. These should be gathered together in a heap, and allowed to rot, or partially rot. This can be done from time to time when convenient. When hot, dry weather is likely to occur a heavy dressing should be spread all over the ground amongst the vegetables. Stirring up the soil frequently has to a great extent the same effect as a mulch—that is, to prevent soil moisture from evaporating. Of course, frequent waterings are now necessary, and will have to be continued during the coming three or four months of summer, except, of course, when good rains are experienced. A deficiency of water is the precursor of failure in the crops, but even a limited supply, if judiciously used, may be better than a much larger

quantity used without judgment. Watering, when it is done, should be done thoroughly. Mere sprinklings may do harm rather than good, for they moisten the surface only, while an inch or so deep the soil may be dry.

Beans, French and Runner.—These should be at their best. Seed may be sown from time to time in any part of the State where the rainfall has been satisfactory. These beans delight in warm, moist conditions. Gather the bean pods whilst they are young and not fully developed, and then it will be found that the flavour and quality is infinitely superior to the pods gathered when nearly matured. When sowing, make drills about 2 feet apart for tall-growing varieties, and sow the beans about four inches apart in the drills, covering the seeds $1\frac{1}{2}$ inches deep.

Beet, Silver.—Sow a row or two of seed in well dug up ground.

Cabbage.—Sow a little seed occasionally, not much at a time, but just sufficient to keep up a continuous supply of plants. Plant out a few strong young cabbages from the seed-bed to some well-manured ground.

Cauliflower.—Sow a small quantity of

seed for early planting. It should be sown either in boxes or a seed-bed, which should be shaded and watered. When the plants are strong and hardy they should be planted out, about 3 or 4 inches apart, in a small, well-prepared bed, in order that they may develop well for further planting out in their permanent places.

Celery, Red and White.—A little seed may be sown during the month so as to have a supply available if required. For further particulars see article on page 8.

Cress and Mustard.—Sow a little seed occasionally to keep up a supply. Make the ground rich with well-rotted manure, and take means to make the bed somewhat below the surface of the surrounding ground.

Cucumber.—Seed may be sown if more plants are required. The fruit should now be available in quantity. Plants coming on slowly will be improved considerably if supplied with occasional applications of liquid manure, made from horse, cow or fowl dung, or all three mixed together. It should not be allowed to flow over the leaves when applied.

Onion.—Sow a little seed, and keep



CANADIAN WONDER FRENCH BEAN.

the onion beds free from weeds. Scatter amongst any onions which you may have growing a mixture of soot and salt, half and half. This is a useful stimulant, and it will, in a great measure, prevent the attack of worms and insects.

Radish.—Sow a little seed from time to time and use the plants as quickly as they are ready.

Rape.—Sow in light rich soil in drills half an inch deep and 8 inches apart, and sow thickly. This valuable vegetable can be sown at almost any time of the year. The leaves are used as Spinach, and it is also used as a salad.

Spinach.—Sow a little seed, but very little.

Tomato.—These plants are growing with great rapidity, and need frequent attention in staking and tying, pruning, &c. If the plants are set out in lines, a trellis may be formed, and the shoots as they grow should be secured to it. Care must be taken not to tie the shoots too tightly, for if this be done the ligature will assuredly do harm by cutting into the soft fleshy stem. Tomatoes grown on the trellis system, or if only tied to the one upright stake, produce earlier, finer, and better quality fruit than when the plants are allowed to sprawl all over the ground. At the same time the plants are more easily thinned of surplus shoots, and the fruit is more readily gathered. More water is required when the plants are kept away from the ground than when the vine is permitted to cover the surface of the soil.

The use of rotted manure rather than fresh manure is desirable in connection



ROLLISSON'S TELEGRAPH CUCUMBER.

with many market garden or vegetable crops, as it gives quicker results and with root crops will give a smoother and nicer product.

The Rubbish Heap.

A rubbish heap of some kind or other is necessary in every garden. There must be a depot for weeds which have been cut or hoed, and raked off, for prunings or clippings of all kinds, whether from kitchen garden, shrubbery, or flower garden. An accumulation of rubbish is inevitable, but the rubbish-heap should not become offensive to the eye or nose. By a little care it may be converted into manure of some value. Should there be even a suspicion of any insect or fungus pest amongst the stuff wheeled to a heap, a fire should be lit at the first opportunity, and the whole burnt. The ashes



LARGE WHITE-RIBBED SEA KALE BEET.



PRICKLY SPINACH.

are valuable as manure. If the heap be composed of vegetable matter free of any disease, then it may be allowed to rot and form valuable humus suitable for any part of the garden. Care should be taken not to convey to the rubbish heap broken glass or pottery-ware of any description. Such valueless and indestructible material may be buried deeply in some out-of-the-way place.

Capsicum.

In Roumania large areas are devoted to the cultivation of the capsicum, also of the egg plant and the mallow (*Hibiscus esculentus*). The large fruited, thick-fleshed capsicum fruits are, whilst still green, roasted on the hot plate of the close cooking stove; freed from the rind, and eaten as salad with oil and vinegar; or the raw fruit is filled with meat and rice and cooked, and are thus brought to the table. The small-fruited chillies are eaten in the green state, or allowed to ripen, and used as a condiment with meat. The plants are set out at a distance of 10 to 18 inches apart, and by liberal waterings more fruit than leaves are produced. The seeds are sown in hotbeds, and when frosts are over the young plants are put out in light soil in warm positions, are hoed, and nothing more is done to them except watering.

Roses ; All the leading varieties, half-standards, 1s. each

Fruit Trees ; Orange, Lemon, Peach, Apple, Pear, Plum, etc.

HARDY SHRUBS, Trees, Climbers, etc.

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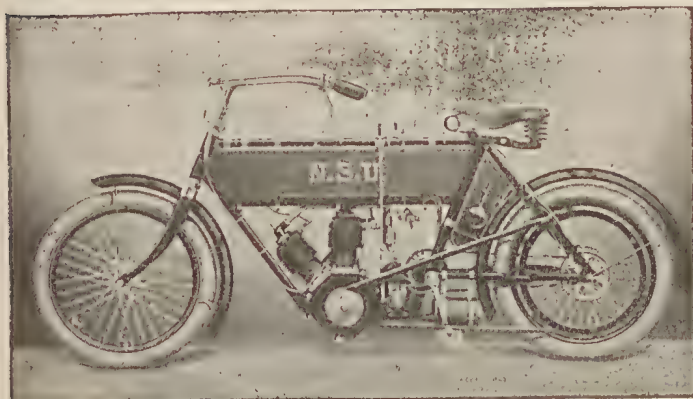
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ONLY £10 10s.

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SANDRINGHAM CELERY.

Celery.

Celery has been not inaptly described as the most gentlemanly of all the salad herbs; at its best it is perhaps deserving of the compliment. It shows unmistakable signs of good breeding and cultivation and when daintily crisp and 'nutty' its alliance with the Stilton is beyond reproach. This, however, is to take the herb on its social footing, but it has other and weightier claims to respectable recognition. Few edible plants better repay attention; and to the amateur gardener who prefers the useful to the ornamental his celery is hardly less a pride than a delight. The early sowing of the seed; the tender pricking out of the pushing young things and their removal to temporary premises; the transplanting of the more robust in the carefully prepared trenches. And then the digging of the those same trenches! That is a feat which has surely received the domestic commendations it so well deserved. Perhaps it looks harder work than it really is, but the carefully raised banks of earth make a capital show. Even now, however, the keenest pleasure of all is to come, and it will make the three summer months run as lightly over the amiable culturists' head as if he had his own 'acceptance' to meet at the end of them. Which, happily, in this innocent form of recreation, is never needed. The inspiring process known as 'earthing up the celery' will occupy the gardener during the greater part of the summer. He takes it in easy stages, and by the time he has finished the last row, it is time to begin on the first. And that he has been engaged in 'earthing up the celery' is an

impeachment which the most sensitive amateur is always ready to admit without a blush.

But it is necessary to admit that the delicate white celery which results from this pleasant series of operations is of very humble origin. The wild celery, or 'smallage' is to be found in most temperate climates. It was once plentiful enough in England, and the Isle of Thanet and the meadows bordering the Trent were almost over-run with it. The famous Marshal Tallart, brought as a prisoner of war to England in 1704, resided for some years at Nottingham, and the introduction of celery into this country has been placed to his credit in the ill-audited books of post-humous famous fame. It may be admitted that, to enhance the attractions of the 'elegant table' at which he was accustomed to entertain the neighbouring gentry, the Marshal 'procured celery to be sent to him from abroad.' But this is in no sense an implication that celery was not then produced in England. As a matter of fact, it was fairly common, though no doubt it was as yet inferior to that imported from Flanders. From a work written by a nephew of John Milton in 1678, we learn that 'Sellerie is an herb which, nursed up in a hot-bed and afterwards transplanted into rich ground, is usually whited for an excellent winter salad.' Such a precise description must have been founded on experience; and it is quite clear that celery was grown and 'earthed up' in England long before the enforced sojourn here of its so-called introducer. Other authorities tell us that it was first cultivated in Italy, and some support is given to this idea by the often-recurring item in old lists of plants—'up-right Italian celery.' Some of the Italian varieties are still occasionally seen in England, but the Italians care little about 'blanching' their celery. Nor, for that matter, do the Germans or the French. It is as an ingredient of soups and stews that the esculent is chiefly esteemed on the Continent, and the unbleached plant is certainly of more powerful flavor.

It has been long recognised by the chefs—and even our own 'plain cooks' follow suit therein—that celery is absolutely indispensable in the kitchen. As one of the great masters of the art pathetically inquires, 'What would become of all my soups, sauces, and entremets without celery?' We leave him to his own solution of that problem, finding enough to wonder at in the neglect of celery as a cooking vegetable among ourselves. Scores of authorities on the culinary art have insisted on the advantages of celery cooked, as opposed to celery raw. But what a loss is there in the presentment of celery at table in the guise of sauce, in which we almost invariably take the word for the flavor. Both epicures and moralists would experience a grateful glow of appreciation if the traditional imposture known as 'celery sauce' were at last to be superseded by the real thing. Recipes

abound, but here is one of approved simplicity which has not been surpassed by anything more novel and intricate. 'Wash six heads of celery. Halve or leave them whole, according to size, and cut into lengths of four inches. Put them into a stewpan with a cup of thin white gravy, and stew till tender. Then add two spoonfuls of cream, and a little flour and butter seasoned with pepper, salt, and nutmeg, and simmer for a few minutes all together.' But this, the fair critic may object, is not celery sauce at all, but simply stewed celery. Precisely; but it provides delicious sauce, while you also make sure of the celery, so often unaccountably absent.

It should be accepted as an axiom that the best celery procurable is not too good for cooking purposes. Whether it shall be the 'Manchester Red' or the 'Sandringham White' is a matter of choice. But too often we only get 'the celery' with the cheese, while the outsides are thought good enough for the cook. But these are sometimes strong and disagreeable, if not actually injurious. 'Smallage' the founder of the modern branch of the family, is a rank and acrid weed, which develops in moist situations a poisonous narcotic principle. Excess of moisture, or insufficient earthing up at the right season, will even now demoralise a whole crop of celery, which at once gives unmistakable hint of those noxious qualities that have only been conquered by the labors of many generations of gardeners. And the reason is simple enough. The development of the narcotic principle is favored by light and moisture. Without the former, indeed, its secretion becomes almost impossible. Darkness and seasonable dryness, on the other hand, promote aromatic qualities of the plant. Here we have the whole philosophy of the earthing up operation, with which even greater personages than Marshal Tallart—a true lover of gardening—have recreated their minds and hardened their muscles. The little nips and foretastes of frost which come to perfect this delightful esculent are not yet at hand; but while appreciating the crisp finishing touches thus bestowed upon our celery, let us not fail to acknowledge our indebtedness to the persevering cultivator who 'earthed it up.'

A new fruit—the Lowberry—is figured in colors in the last number of the English 'Garden.' It may be described as a gigantic blackberry, measuring about 1½ in. long, jet black in color when ripe, and the fruit is very juicy. It is the result of a cross between the loganberry and the blackberry. Although the raspberry is one of parents of this new fruit, the habit of the plant is more akin to the blackberry, for the long canes run from 12ft. to 18ft. in one season. The lowberry likes well-manured soil. After fruiting, the old canes may be cut away, as in the raspberry.



NOTICE TO FRUIT AND PLANT DEALERS.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.
2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.
3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.
4. No plants other than those growing in pots having soil attached to their roots will be admitted.
5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.
6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.
7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.
8. No plants or portions thereof will be admitted from any State or country where phylloxera exists unless accompanied by a declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in the exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phylloxera exists or has existed in the plantation from which the plants originated.
9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.
10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace.

L. O'LOUGHLIN, Minister of Agriculture.

Government Poultry Station.

Agricultural College, Roseworthy.

Eggs and Chickens for Sale during Season.

Black Orpington, Buff Orpington, and Indian Game—Eggs, 15s., Chickens, 30s. a dozen.
Silver Wyandottes, Faverolles, Minorca, White Wyandotte, White Leghorn, Old English Game—Eggs, 10s., Chickens, 21s. a dozen.
Table Birds—Eggs from various crosses, 3s., when available.

Settings will be 15 eggs and no replacements.

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The stock is of first-class quality and vigorous.

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Primula, Large Flowering Fringed, mixed,
1s packet

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2s 6d packet

Primula, Fern Leaved, Fringed, choicest
mixed, 1s packet

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1s 6d packet

Auricula, Choice Alpine, mixed, 6d packet

Polyanthus Primrose, "Royal London Parks,"
lovely shades of crimson-maroon, rich
purple and deep orange, passing to palest
primrose and white, 1s packet

Calceolaria, Splendid Large Flowered Tigred and
Self-colored, 1s packet

Cineraria, choice mixed, 1s packet; fine mixed, 6d pkt.

Cineraria, Large Flowering Dwarf Compact, prize
varieties, extra choice mixed 2s 6d packet

Cyclamen, Hackett's Giant Flowered, mixed, 1s and
2s 6d packet

Cyclamen Persicum, mixed, 6d packet

Tuberous Begonias, "International Prize," Single and
Double, unrivalled strain, 2s 6d packet
Also, Single, 1s packet ; Double, 1s 6d packet

Pansy, English and Scotch, Finest Large Flowered,
1s packet

Pansy, Mammoth Parisian, 1s packet

Pansy, Exhibition Varieties, extra choice, 2s packet
Also Packets of mixed Pansy Seed at 3d and 6d.



Polyanthus Primroses, Royal London Parks.

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CINERARIA HYBRIDA GRANDIFLORA.

Favorite greenhouse and conservatory plants, largely grown for Spring blooming. The colors are very rich and varied. They are also largely used for bedding in the flower garden. A sheltered spot should be chosen, and they will last in bloom for a long time. Their large heads of bright and various colored flowers are very effective. May be sown from December to April.

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The Flower Garden.

Notes for the Month.

A good deal of attention must be given to Chrysanthemums if it be the intention to grow flowers of the best quality. Chrysanthemums will grow almost anywhere, provided they have sufficient moisture, and will produce pretty flowers in great quantity; but it is quite a different matter if extra fine flowers are required. Considerable care must be taken with the plants from their youngest

stage until their flowers are in full bloom. They will need watering frequently overhead and to the roots. They should be grown to one stem only, and should be tied up to a trellis, or to stakes, as they grow. Liquid manure, in a weak state, should be applied occasionally, and a dressing of farmyard manure—straw and dung—had better be spread over the soil between the plants as a mulch. All suckers should be removed as they grow up around the plants, and insects, cater-

pillars, &c., must be looked for almost daily. Enthusiasts in Chrysanthemum culture take a great deal of trouble with their plants, much more than is generally supposed. Very good flowers may be grown under ordinary care, however, and they are worth spending some little time over. Chrysanthemums make very pretty pot-plants, for they can easily be trained into a variety of forms, with little more trouble than nipping off the shoots and tying out the branches as they grow.

Roses have absorbed much time and attention during the past month, and should continue to do so. The flowering season can be prolonged if they are regularly disbudded. Relieve the bushes of all full blown blooms, cutting back to a strong outside bud. If they are suffering from mildew dust them lightly with sulphur or soot. If the aphid is troublesome and persistent it is because the Roses are not growing vigorously from some cause or another, and have not the strength to throw off the pest and there is some impurity in the sap. Tobacco water will help to diminish the nuisance, but the best way is to encourage the Roses with liquid manure, mulching, and water in moderation to make a free and healthy growth.

Hollyhocks in windy positions, Delphiniums, Perennial Phloxes, and Bouvardias will want staking, although they should be so strengthened by being regulated and having superfluous growth removed as to be almost independent of support. In some cases staking is unavoidable, but the stakes should not obtrude themselves so as to make one uncomfortably conscious of their presence. Thin iron ones are the strongest and least aggressive. Wooden ones can be rendered less conspicuous by painting them a brownish-green tone.

Plant Dahlias. Keep the soil loosened after heavy waterings or rains. Dahlias need good supplies of water, and some liquid manure now and then. They should be tied up to stakes as they grow, for they will need support, their stems being very brittle, and easily broken by winds.



GROUP OF BOUVARDIAS.

Bouvardias, which bear exceedingly pretty and graceful flowers, should now be producing abundantly, and the more frequently the flowers are cut the more the plants will produce. They should be supplied with liquid manure occasionally, if they do not seem to thrive luxuriantly.

Carnations should be flowering freely during the month. They should be carefully staked, three or four small sticks to each plant, or else supported by wire netting. Reduce the number of buds, leaving only one, two, or three, according to the strength of the stems. Carnations soon exhaust the soil, and when this happens they become weakly and a prey to insects and disease. Renew the soil at their roots periodically, and give them manure water particularly at this period.

Balsams, Zinnias, Amaranths, and other autumn flowering annuals can still be planted out, choosing a cool, showery day for the purpose. Zinnias can be made most effective use of in the borders.

Sow Canna; also Calceolarias, Cinerarias, Cyclamen, Primulas, &c., may be sown now for early flowering.

Peg down Verbenas, Heliotropes, and Petunias to induce a spreading habit. They are not half as effective if allowed to grow tall and spindly.

Regularly remove decayed flowers of such plants as throw up a succession. The bandages round buds or late grafts will by this time require loosening, and re-tying if they are not firmly united.

Now is a good time to plant Nymphaeas or water lilies. These really superb plants are not difficult to grow. The cottager may grow them in his small garden, or even in his backyard. The chief requisite is water, and this need be only one or two feet in depth, a little rich soil, and, in the absence of pond or lake, a tub, or even a large flower-pot with its drainage hole corked up will do very well. The situation must be open and sunny, yet sheltered from high winds. A free circulation of air is necessary. For tub-work those of moderate growth should be chosen, the stronger growers for ponds, &c. Running water is not so good for these plants as a pool with an outlet or an overflow. If the soil of the pond in which the plants are to be placed is poor, it must be enriched by the addition of some compost, say, two-thirds of turfy loam and one-third of decayed cow-manure. The plants should be fixed in an old basket, or tub, or pot, in good soil, as just mentioned, and well secured. A few stones or crooked sticks may be sometimes used to steady and hold in position the basket or tub.



DOUBLE CHRYSANTHEMUM—NEWEST HYBRIDS

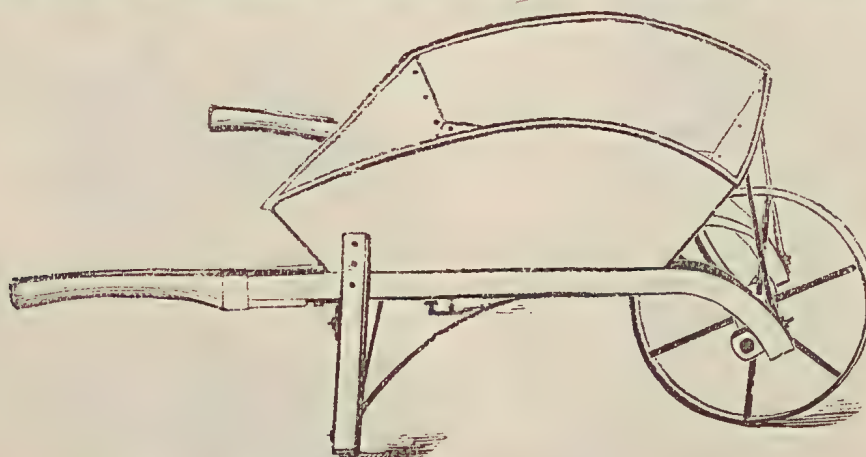
Although the culture of Nymphaeas is so simple, it must not be thought that, once planted, there they are to remain for ever undisturbed or uncared for. The plants in a few years time, especially the more vigorous growers, become so crowded, and produce so much foliage, that the leaves grow right out of the water, and so completely hide what flowers are produced.

It is only when all the leaves are floating that the true beauty of the plants can be appreciated. Some of the hybrids are worth cultivating for their handsome foliage, their leaves being beautifully marbled and spotted, and the flowers of all are handsome, of all sizes and nearly all colors, white, yellow, blue, rose, peach, salmon, flesh, purple, and red, to the deepest crimson.

BLUE WATER LILY.
(*Nymphaea coerulea*)

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GROUP OF DAFFODILS.



GROUP OF NARCISSUS TAZETTA.

Daffodils.

Daffodils are first cousins to Snowdrops and Snowflakes, and this family relationship is evident in the bulbs, leaves, flowers to some extent, and fruits; the three genera are also alike in their habit of flowering early in the year. The character which distinguishes all Daffodils from other hardy flowers is the corona or crown, formed by the prolongation of the tubular portion of the flower.

Many people are perplexed as to the difference between a Narcissus and a Daffodil. It consists chiefly in the number of flowers born on a stem. Narcissus is the family name, Daffodil the title given to a section of the genus in very early times. For gardening purposes, Narcissus is the name by which those bulbs are known which have many flowers on one stem, like the Polyanthus.

Daffodil refers to those bulbs which usually bear but one flower on each stem. In this State the bunch-headed Narcissus bloom before the Daffodil. Of them the best known are Paper-white, Paniz-zianus (a small but beautiful flower), Dubius, Grand Soleil d'Or, Maximus, and Double Roman. They succeed in any ordinary garden soil, and once planted take care of themselves. The most desirable are those in which the perianth segments overlap each other, as in Grand Soleil d'Or. A common but less valuable type has the segments divided and the petals pointed, while they are limp and flabby in texture.

The correct time to plant Daffodil seeds is early in December. Put them in pans in the shade, and keep them moist not wet. Use a loose mould of decayed vegetable matter and sand. Plant out in the early Spring, say in August.

The cultivation of Daffodils generally present no difficulties. All the sorts here named are easily kept from year to year. If grown in beds or borders they should be lifted every second year or so, and even when lifted every year to make room for summer flowers, they do not suffer if treated with proper care. Bulbs grown in clumps in borders may remain in the soil till the leaves wither, when they should be lifted with a fork, the clusters broken into single buds, and then replanted again. The top of the bulb should be three inches below the surface of the soil.

The Daffodil is essentially an English flower, in the same sense as cricket and football are English games. In Australia and New Zealand, in Canada and the United States, Daffodils rank with the most favoured of flowers, whereas in Continental countries, if we except Holland, they find scarcely any admirers.

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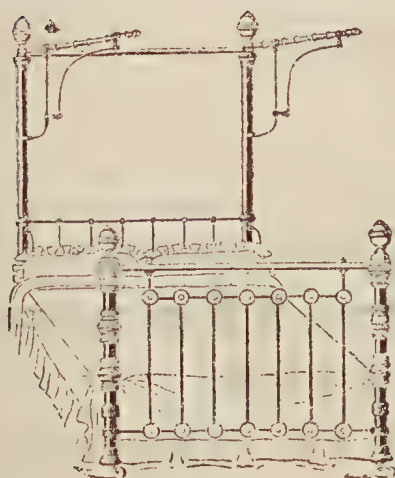
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The Orchard.

Fruit Buds.

Experimentalists have been trying of late to ascertain exactly when it is that the buds of a fruit-tree can be accurately differentiated as flower-buds or leaf-buds. On most trees there is nothing to show at first whether a bud will burst into a blossom or develop into a leaf, and no one knows what determines the differentiation. According to Professor W. S. Thornton, the horticulturist of the Washington experimental station, it was at one time supposed that if a tree failed to develop buds in July or August it would not fruit that year. (Of course the professor is speaking of the American summer, which is our winter.) But experiments show that during favourable seasons a tree which has been robbed of its fruit buds as late as October 15, is capable of producing a fair crop of fruit next year, the conclusion being that the period of flower-bud formation is almost unlimited, and frequently extends from the end of June to late winter or early spring. The development of the growing tips into fruit or into leaf-buds may be accounted for by the temperature and moisture of the season, cool weather checking growth, and, the food material being already manufactured, embryonic flowers are thrown out. A check of the downward flow of sap, or of the growth of the mature tree, whether due to the want of food or to want of water, causes the development at once of a large number of fruit-buds. Removing the

leaves, or all but one leaf from fruit-spurs before the buds were obviously fruit-buds, seemed to produce little or no change in the manner of growth, though it hastened maturity. Trees in untilled orchards have been found to produce fewer buds than those which were looked after, but the buds matured earlier. Apparently the soil of untilled orchards being drier than that of those which are cultivated, the trees in them cease growing sooner, and, consequently, have not as much reserve food for the development of fruit-buds. When ground is cultivated, there is plenty of moisture for the roots, and the trees keep on growing, fruit buds not being formed until late in the season, or when cool nights have checked growth. On the other hand, an experiment upon two young Gideon apples, made by Professor Goff, of Winesconsin, in which one tree received weekly during June and July two barrels of water; while the other was left to depend on the rainfall, showed that they commenced to develop flower-buds at practically the same time, and that the irrigation, while increasing growth, tended to reduce the size and weight of the buds. In peach, plums, and cherry trees, it seems that from three to four months are required for the development of the floral organs of a bud; but in apple and pear trees there are great variations of age. Some buds flower in the first year; but many wait until the second, and even third season after formation before blossoming, and densely shaded spurs sometimes never develop. This semi dormant condition of buds gives a plausible explanation for the alternation of large and small crops of fruit.

Automobile Walnut Gatherer

A great drawback to the industry of growing English and Persian walnuts in California has always been the harvesting of the crop, says the 'Los Angeles Herald.' The nuts are allowed to fall from the trees and are then picked up by gangs of men and women, mostly Mexicans, who hull them by hand as the

gather them into their sacks. The process is slow, and, in cases of scarcity of labor, a whole crop is likely to lie on the ground through a night's rain or heavy fog. In view of this fact a recent device is much appreciated by the nutmen of the south-west. This invention is nothing less than a machine whereby the nuts are gathered from the ground, separated from all waste, then hulled and sacked without leaving the machine. It requires two men to operate it, and will do the work of 100 men all the season through. This machine consists of a two cylinder gasoline engine taken from an old Jackson car. The Jackson engine is hung between 4 ft. wheels low to the ground, so as to get under the low-branched trees. This truck, which the engine propels, carries the walnut picking apparatus. There is a large exhaust blower, producing about 18 oz. to the inch pressure, working as a suction pump at the front. The intake divides into 18 tributaries, each 4 in. in diameter. These suck up all the walnuts which come in their path, picking clean a swath 6 ft. wide, at about four mile an hour clip. The temporary derangement of one tributary will not interfere with the others. The nuts, leaves, and twigs thus sucked up are dumped into a large tank, and the exit force of the blower separates the debris and bad nuts from the good ones, and blows the waste material out on the ground behind the machine. The good nuts go to the huller, where they are completely hulled and the hulls blown away, and sent through a long tube to a sack which, when it receives a certain weight, is closed and sewn automatically.

Antiquity of the Apple.

All the apples known are the progeny of *Pyrus malus*, which is wild in many parts of Europe and Asia. It has been used for food and cultivated by man for upwards of 4,000 years. The greater number of varieties now in cultivation have, however, been bred within the last century or so, new varieties being added

yearly. The oldest apple in cultivation is a variety called "the Lady," which originated in Britain early in the 17th century. Other very old sorts are Cat's Head, Golden Pippin, Joannetting, and the Summer Pearmain. Improved varieties are obtained by means of seeds, and whilst some are the result of careful crossing, a large number are of chance origin. Amongst the latter are such high-class sorts as Ribston Pippin, Blenheim Pippin, Dumelow's Seedling, and Devonshire Quarrenden. Claygate Pearmain was found in a hedge, Keswick Codling on a rubbish-heap, and Cornish Gilliflower in a cottager's garden. We cannot, however, rely upon seeds for the perpetuation of any particular variety; thus seeds of Ribston Pippin would not yield one in ten thousand of equal quality to the parent.—"Standard Cyclopedia of Modern Agriculture."

The Prickly Pear.

In a recent bulletin, issued by the United States of America Department of Agriculture, a full account is given of the species of opuntia which produce edible fruits. Tuna is the Spanish-American synonym of the English "Indian fig," the American and Australian "prickly pear," the "Barbary fig" of the French, and the "higos chumbos" of Spain. In Mexico, Texas, and Sicily the plant is regarded with great favor, but it is reviled in Australia, South Africa, and India. The following note, in view of various magazine articles on "spineless cacti," is worth quoting:—"All the so-called spineless forms (the fruit of which is not spineless, however) concerning which there is definite knowledge, are less hardy, especially under conditions of drought, than spiny native forms." It is evident that the spineless forms have a very limited range of cultivation. The plants in Mexico are propagated, when any attempt at cultivation is made at all, by cuttings of two or three joints, and from these a crop of fruit is produced in three years. Not only are they planted in orchards, but the most prickly forms on the hillside. The fruits

are sold in the markets, and eaten after being peeled. The price varies, according to locality and variety, but sometimes as many as twenty fruits are sold for one cent. The fruits are fully described, and chemical analysis given of the different portions. The mode of harvesting is also alluded to; and a description given of the machinery used in making tuna products. The products described are "Miel de Tuna," a sort of fruit syrup; "Melchocha," somewhat like the foregoing, but becoming candied more quickly; "Queso de Tuna," or tuna cheese; "Colonche," a fermented drink which will not keep; and dried tunas, the thinly-peeled fruits dried in the sun. The fruits of upwards of a dozen kinds of opuntias are used as food.

Notes on Mulching.

The advantages of mulching trees and shrubs in this hot and dry climate of ours are great, but some little common-sense is necessary in carrying out the process. A mulch simply means some kind of top-dressing to prevent rapid evaporation of moisture of the soil, and also it is often intended that the material be a means of supplying food to the plants whose roots it protects.

The best all round mulching material is decayed or partially decayed stable manure. This may be used for nearly all kinds of trees, shrubs, and plants; but there are a few exceptions. Manure is inimical to such plants as heaths and allied subjects, and for these leaves or lawn mowings may be used. Stable manure is a little unsightly when placed round plants growing in a trimly-kept lawn; but short grass is less objectionable. In the orchard there need be no squeamishness on the score of appearance, for here seaweed and almost any kind of litter may be used with advantage. Very wet close manure tends to keep the air from the roots; therefore it should be avoided as much as possible.

There are two mistakes often made in applying a mulch. One is that it is put on too thickly; the other that it is not put on at the right time. A very light

mulch applied when the tree or shrub is planted will be of service, but to lay on a thick coating while the soil is cold, and perhaps wet, is a mistake. It prevents the sun from having its beneficial influence in warming the soil, and so retards the growth of the plants it is used on. It should not be put on after a long period of drought, for it would largely absorb the moisture when the rain falls, which the roots so much require. The full benefit of a mulch is felt when the soil has become warmed, and when it is put on directly after there has been a heavy soaking of rain. Should the soil be dry and no prospect of immediate rain then give a good watering and apply the mulch soon afterwards. Whenever the mulch is laid on the surface the soil should be first lightly loosened with hoe or fork.

The mistake is often made of laying on too heavy a coating of mulching material. This may do considerable harm. It is done to save trouble, but it is better to apply two or three light mulchings rather than one very heavy one. In our hot climate the mulch soon dries up, and when this occurs fresh material should be laid on or mischief may follow. The thickness of the coating will vary according to the material used and the nature of the trees or plants to be treated. In many districts it is difficult to procure good mulching stuff. When this is so, the surface of the soil should be frequently well stirred with fork or hoe.

Experiments have been made by M. J. M. Simon, says a writer in the "Gardener's Chronicle," with a view of restoring vigor to decaying fruit trees, by injecting certain nutritive fluids into their tissue, with considerable success. The method of procedure is to place a vessel containing the fluid, about six feet from the ground, near the tree; from this a pipe connects with a tube, which is forced into the tree just above the level of the soil. By this means the liquid is subjected to a certain amount of pressure. It mingles with the sap, and is carried to all parts of the tree.

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The Farmer's Orchard.

Farmers are not orchardists. As a rule, the farmer's orchard wears a neglected and woe-begone look. Fruit-growing is a special line of business that demands the undivided attention of the orchardist. For that reason it does not commend itself as a branch of work to be included in any scheme of mixed farming. But, naturally enough, the wheat-grower or the dairyman likes to plant out a few acres. If he bestows upon his trees only a little care, and gives them plenty of cultivation, he gets a crop of food that his family cannot consume. The question arises whether it would not pay to market the surplus. As soon as marketing enters into consideration a crop of difficulties appears. Marketing is by no means the least important part of fruit-growing, but it is an operation the

importance of which it is hard to impress upon one who is not dependent upon fruit-growing for a livelihood. Marketing comes at an inconvenient time of the year for the farmer. During the summer months there is plenty of work that cannot be neglected, so when there is a surplus of fruit it is bundled hastily into any sort of case and sold for what it will bring. It is this pressure of outside work at almost all seasons of the year that prevents the enlargement of the farm orchards. Comment is frequently made about the condition of farm orchards, but it surprises no one who has had experience in either occupation that the trees should be more or less neglected.

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THE FARM.

Diseases of the Skin.

(Continued from last Issue.)

S. S. CAMERON, M.R.C.V.S., Chief Veterinary Officer, Melbourne, in the Victorian "Journal of Agriculture."

NON-PARASTIC SKIN DISEASES.

Eczema.

Excepting the conditions specially dealt with in this chapter all skin affections of an inflammatory or irritative character may for practical purposes be classed as eczemas. They are known under different common names such as prickly heat, summer mange, blood boils, heat pimples, dandruff, and they may be scientifically divided into 'lichen simplex,' the diffuse form of eczema when the pimples are scattered; 'herpes' when the pimples appear in patches; 'strophulus' when the hair is shed and bare patches of skin left; 'psoriasis' and 'pityriasis' when the disease assumes a chronic scaly condition.

In Simple Eczema there is an eruption of small pea-like pimples on the surface of the skin at any part but most commonly on the sides of the neck or shoulders, the flank and inside the thighs, and at the root of the tail. At first they are simply small hardish elevations but soon they become filled

with a watery fluid (serum) and form 'vesicles.' These may either dry up or burst leaving a scaly scab which peels off in a few days. Sometimes the vesicles become transformed into pustules containing matter (pus) and ill-looking sores are formed while healing.

Causes.—The disease appears to be brought on by some influence which interferes with healthy action of the skin such as checked perspiration, errors in feeding, irritation from wearing woollen or dirty clothing or from dirt being allowed to accumulate on the skin, want of grooming, a heated state of the system, or by infection. In some cases its cause appears to be constitutional, in others local. (Hayes.) The affection is common at the change of the seasons, spring generally, and some horses suffer year after year about the same season.

Treatment.—Horses on hard feed should be changed to laxative diet consisting of grass or other green feed and a daily bran mash with which from two to four ounces of Epsom salts may be mixed. As a local application a little glycerine may be applied or the olive oil and soda emulsion previously recommended for 'chafes.' When pustular sores form, Tincture of Creolin (creolin 1 part, methylated spirits 15 parts) forms an effective dressing and it also has a marked effect in stimulating the growth of hair. In obstinate cases arsenic in the form of Fowler's solution may be given as a skin tonic and alterative powders containing an ounce of Epsom salts and half an ounce of sulphur are also advantageous.

For eczema in the dog (in which animal the disease may vary from a slight vesicular irritation to a condition of extensive suppuration or great thickening and encrustation of the skin)

internal treatment with Fowler's solution of arsenic (5 to 10 drops per day in the drinking water) should be accompanied by the application of zinc ointment in early cases or Iodide of Sulphur ointment in confirmed and intractable cases.

Scaly Eczema (psoriasis and pityriasis) is a chronic condition of the skin characterized by the formation and continuous peeling of dry bran-like scales. The affection is mostly localized at the base of the mane, root of the tail and about the neck, shoulders and croup.

Treatment.—Local applications do not appear to do much good. The disease must be attacked through the system and after a cleansing of the bowels by a purgative or laxative medicine a course of tonics (arsenic and sulphur alternated) is the best possible treatment. Care should be taken in grooming not to irritate the skin, and only the softest brushes and cloths should be used.

Rain Rot in Sheep.

This is an eczematous condition of the skin of sheep occurring in poorly fed animals with sparse wool. The surface skin of the neck, shoulders, back and tail becomes softened by rain or dampness. A thickening of the skin follows and may be accompanied by the formation of vesicles and scabs. The wool is likely to all off and there is great itchiness.

Treatment.—In mild cases the affection disappears as soon as the rainy season is over. If this does not happen the parts should be dressed with Tincture of Creolin or one of the ointments recommended for eczema in the dog.

(To be Continued.)

Any farm which will grow clover will produce pigs at a profit.

V I C E R

Serves

Sheep for Farmers.

By R. H. GENNYS, in the 'Agricultural Gazette of N.S.W.'

Farmers who combine other industries such as the growing of cereal crops, with sheep breeding should secure a flock that will give them the best net return annually per sheep.

Having but very limited areas, as a rule, the increase must be got rid of quickly, so that early maturity is a very important feature, and lamb and teg mutton raising is chiefly aimed at; this is quite in agreement with the meat export trade, which always prefers the early maturing carcass.

Wool is a secondary consideration, but must not be overlooked in the mothers of lambs, which may be shorn for several seasons.

What the lamb and mutton trade requires as well as early maturity is quality of meat more than quantity. The weights required in lambs being from 28 lb. to 40 lb. not more, anything beyond this is too heavy and would probably be termed teg or weaner mutton, for real lambs should be suckers up to the time of being slaughtered, and should be taken from their mothers at about four months old in order to give the latter time to properly recuperate before being mated again.

Rams to be used.—As the British breeds point to the earliest maturity they should be used principally as the sires of the lambs, and of whatever breed should always be a pure-bred of the best description and constitution, as he will then be likely to impress his qualities on his offspring. For lamb and mutton raising he should have the mutton points well developed, some important ones being:—

Good shoulders and broad-withers, deep, full chest and brisket, good girth measurement, wide back with well-sprung ribs with good loins, broad dock and deep full twist: with the other male attributes that should be possessed by all sires—such as masculine heads, wide nostrils, good scrags, and wool of stronger type generally than ewes of the same breed

The Ewes should possess a good carcass, but effeminate in character, with good digestive organs, well-developed hind-quarters and good udders, obvious points necessary for producing a good supply of milk for the speedy development of the lambs. In all cases the ewes should be bred in the district or a similar one, so as to thrive well under all local conditions, as the way they thrive must in a great measure be reflected in their offspring. Young ewes should be bred from in preference to older sheep, but in a well-developed crossbred should have two teeth up before being mated. In merinos generally it is advisable that the four teeth should be up before breeding from them. When big-headed British rams are used with merino ewes, attention must be given at lambing time to assist any ewes requiring aid, and in any case it pays to be very watchful of the flocks at this season, for the percentage of lambs may be increased considerably thereby.

Mating.—It is generally admitted that ewes in rapidly increasing condition but not too fat, are likely to be most prolific. Under average conditions a ram should be mated with not more than sixty ewes; he should be in strong condition, but not too fat. If he should be very fat and lazy—when convenient, yard the sheep at night for a week or so.

Lambing.—The ewes should be in good

condition, but not too fat. They should be on good pasture from the time of lambing until lambs are weaned or sold. The lambs must be well supplied with milk all the time or early maturity cannot result.

Lamb-marking, &c.—Lambs should be ear-marked, detailed, and castrated at from 10 to 20 days old, as they recover much quicker from operations than when older. The latest method is to sear off the tails with a red hot iron instead of cutting them off with a knife. The former method saves much loss of blood, and consequently little or no check is received from the operation. Lambs do not appear to sulk after searing as they do after cutting off the tails; the cut dries and heals quickly and is less likely (being drier) to be attacked by flies. If a disinfectant is used, such as Stockholm tar or a sheep dip, do not put it on the seared part, but smear it on the wool adjacent thereto. One of the objects of searing it is to dry up the wound; that of tar, &c., to keep flies away by the smell near it. When searing make the iron very hot, but do not press too heavily. A moderate time in taking the tail off makes the operation more complete. The principal advantage in searing is claimed to be that it checks loss of blood and consequently prevents any check in development, which is such an important point. Castrate lambs with care at an early age. Avoid frosty or very hot weather if possible. Be careful to use a clean knife. Do not use a knife for other purposes, before thoroughly cleansing it. A clean wound in the scrotum heals quickly. Use Stockholm tar or other disinfectant on the cut. If any dirt is introduced on the blade suppuration may supervene, delay healing, and may check growth.

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Percentage of lambs.—Taking for example pure-bred merino ewes producing 75 per cent. of lambs, the average British ram on merino ewes would give about 5 per cent. more, or 80 per cent. The British ram on a crossbred (British ram on merino ewe) should be about 10 per cent. more, or 90 per cent., while several of the pure British breeds would go 100 to 130 per cent.

Food during rearing of lambs.—It is most important that the ewes and lambs should have good feed continuously, that no check may occur which would more or less defeat the object of early maturity in lamb-raising. Something more than natural herbage is generally required. Good introduced grasses such as Perennial and Italian Rye, Prairie, Kentucky Blue, Timothy, and the like should be provided. Lucerne for spring and summer topping, and rape and Red clover for the winter and early spring are hard to beat. Care must be taken, however, in putting sheep or cattle with empty stomachs on the three later fodder plants for the first time, or hoven may result. Neither should they be put on windy or wet days at first. Get them gradually accustomed to the change by putting them on with fairly full stomachs for a few hours a day; they will then be fairly safe. Lucerne, clover, and rape are all good preparations for wheat, and the droppings of the sheep provide valuable manures and greatly help to keep up the fertility of the land.

Rape is a capital crop for topping stock and improving the quality of the meat—it has been found that 60 to 100 lb. of superphosphate will about double the yield of green fodder of rape, and much of the manure can be returned through ploughing in the later growth for the benefit of wheat, besides adding organic matter to the soil.

Cultivated Pastures.—Land that has been heavily stocked, no matter how rich at first, must become gradually depleted of phosphates on account of stock, and and especially young stock, appropriating so much in the composition of their carcasses, which is not returned to the land in their manure. The phosphates, then, must be returned to the pastures

by top dressings occasionally with phosphatic manures if their fertility is to be kept up. The clovers which may be sown with all pastures will probably keep the land well supplied with nitrogen. Burning pastures, as a rule, is to be discouraged, as this gradually depletes the soil of organic matter, and makes the grasses sour; the sweeter and shallower rooted grasses will also have their roots destroyed, and the grass seeds that would have renewed them will be lost; it will also be found in wheat paddocks that continuous burning of stubble will gradually lessen the nitrogenous contents.

Change of food is very valuable to ewes and lambs, and keeps them in health. The point is to keep them improving from their birth until they are weaned, for then both the weight and the quality will be there at an early date. For stock grazing on succulent growths, like rape, lucerne, turnips, &c., access to a convenient paddock with dry grasses is advisable. The drier foods help to make a better balanced ration, and to a great extent helps to prevent hoven and scours.

Lambs must be young and prime to fetch good prices, and be fit for freezers. Merino lambs and wethers do not make good sheep for oversea; they have neither the shape nor the colour liked, and, as a rule, they mature but slowly. The British-Merino half-breeds generally have mutton of very good quality—probably the best liked of all—but it is the experience here that those that have the largest proportion of British blood attain the weights required much earlier. These might be termed second crosses, and the mothers of them—to pay the farmer best as he shears them—should be of the long woolled breeds; the Lincoln-Merino so far has proved the best wool cutter of all that have been tried here, with the Romney Marsh and Suffolk Down close together next; both the Border Leicester and English Leicester are shaping well in the wool line, but have not been tried long enough here for comparisons. The point is, the breeding ewes should have their wool taken into consideration, but not at the expense altogether of their carcasses.

Miscellaneous Items.

Lucerne will not grow on land poorly drained.

Angora goats generally live twice as long as sheep.

The carrot is by far the best root for horse feeding that is grown.

Potatoes cannot be successfully fed to pigs unless they are first cooked.

The pig prefers a dry location, as it suffers severely on damp, cold days.

With live stock an unproductive animal is always an unprofitable one.

A slight blemish or odd colour does not lessen the value of a horse for service on the farm.

With good care and judgment eighty per cent. of all pigs born should live and develop.

A quarter of a century ago farming in France was a dying industry, while to-day it is in a highly flourishing condition.

The tax upon a sow sucking a litter of pigs is so great that it is poor economy to practise anything but a liberal and judicious system of feeding.

The ensilage stack or pit is a surety at all times, and in the near future will be considered a necessity of every farm, whilst the old-fashioned haystack is a valuable adjunct.

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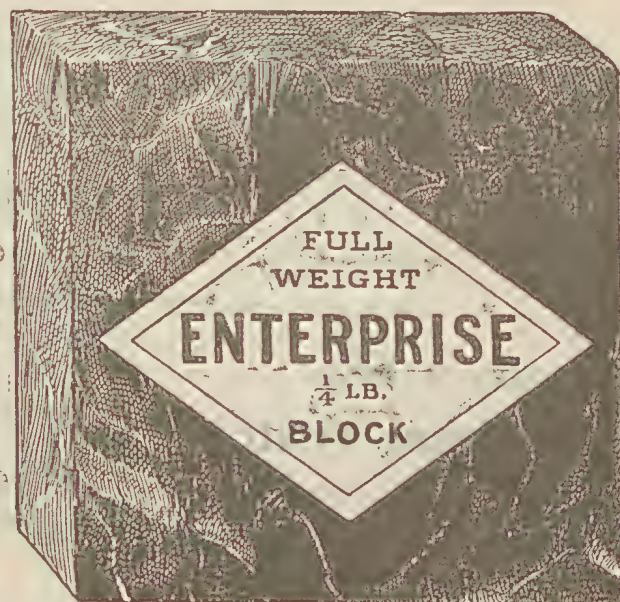
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Milk and Death.

AN EXPERT'S VIEWS.

A correspondent of the London 'Morning Leader,' writing from Heidelberg, under date November 7, epitomises a conversation with Mr. Nathan Straus, the well-known merchant, philanthropist, on the subject of tuberculous cows.

Cows are so liable to consumption that the finest pedigree and the cleanest, most perfectly appointed stables, are insufficient guarantee of wholesomeness. For example, it is a fact, as reported in the 'New York Times' of August 17, 1907; that in a herd of 19 beautifully bred, perfectly kept cows, the property of Mr. Pierpont Morgan, six were found to be suffering from consumption so badly that they were killed—six out of 19 this was a chance discovery. For strangely enough, consumptive cows remain in fairly perfect condition, indeed often look better than those in normal health. They do not waste away as human beings do. The Germans recognise this so well that they speak of consumptive cows as 'fat Frenchmen' (*fette Franzosen*.)

A young girl developed consumption. Inquiries were made as to the possible origin of the disease. It was found that a very fine cow, a winner of many prizes had been killed six months before because it was suffering from tuberculosis. The young girl had been drinking milk from this animal. Pigs die of consumption, and a considerable percentage of all the animals killed are said to be so diseased. They contract it from milk. In parts of Germany it is now forbidden to give skimmed milk to pigs. It is not, however, to give it to children.

At a medical congress held in Paris, a report of which appeared in the 'Matin' of October 16 last, Professor Vallee stated that while in the United States, where pigs are fed on grain, tuberculosis was rarely found among them, it was remarkable that in France, where they are given skimmed milk, the percentage of animals suffering from the disease is as high as 40 per cent., the figure rising even to 95 per cent. on some dairy farms. And unfortunately it is becoming more and more clear that tuberculosis is taken by us human beings not so much from the air we breathe as from the food we eat.

Facts like these made such an impression upon the mind of Mr. Nathan Straus, of New York, that 15 years ago he began preaching in season and out of season upon the dangers of raw milk. Being a rich man—he is one of the most prominent merchants of New York, well known in public affairs, and a supporter of all charitable enterprises—Mr. Straus organised a scheme for supplying sterilized or pasteurised milk to the poor at least. Besides his large central plant, he has many depots scattered over the city.

Here "whole" milk is pasteurised and put up in bottles. Besides this, milk specially prepared and diluted according to the prescriptions of physicians, is put into small bottles for infants, each bottle containing enough for one meal. Eight of these bottles (each is fitted with a nipple) give the baby food for 24 hours, and as each bottle contains not more than enough for a single meal, the child runs little risk of ever getting sour milk.

These eight bottles are sold for two-pence-halfpenny, though all New York doctors are authorised by Mr. Straus when their patients are very poor to write a prescription for free milk, which will be honored at any of his depots. Those who can afford to pay the small charge mentioned do so, but on the whole output Mr. Straus receives less than one half the cost price. "And I do not count my own time," he said, with a laugh, "I give nearly the whole of it now to this campaign, and the time, I need hardly say, is worth much more than all the milk."

But the results show how well worth while has been this expenditure of time and thought. In an address given before the New York Academy of Medicine a year ago Mr. Straus said:—"I have had the satisfaction of seeing the death-rate among the children in the city of New York under five years of age reduced from 96½ per thousand to 63 per thousand per annum." He might, indeed, have put the results in a still more striking form by quoting the death-rate of children under 5 years of age for the hot summer months only—that is to say, for June, July, and August. In 1891, the year preceding the opening of the pasteurised milk depots, that rate was 126 per thousand. Last year it was 63 per thousand.

Mr. Straus is at present staying at Heidelberg, where he is demonstrating the process of pasteurisation. It is very simple. The milk is first strained through a piece of fine muslin, and it is interesting to notice how many blacks and specks and impurities one finds left on the strainer. Passing through this, the milk falls into a bottling machine—a small cistern with some two dozen little taps below. A couple of dozen bottles brought along in a crate are placed directly under these taps. A handle is moved, and in a moment the two dozen bottles are filled. They are then corked, but only lightly, so as to permit the escape of gases, and then placed in a pasteuriser, which is nothing but an oven in which steam is forced till the temperature within rises to 157 degrees. There the milk remains for 25 minutes. At the end of that time the corks are driven home and the bottles placed under a cool spray. The process is complete. That milk is pure and perfectly safe. It will remain so for at least 24 hours. The flavor is absolutely unimpaired.

Sterilisation is a somewhat more thorough process. It means simply that the temperature must be some 30 degrees higher. The milk can then be kept longer, but it loses slightly in flavor, and perhaps just a little in nutritive quality. These two simple machines, the bottler and steam oven, with a bottle-washer,

are all that is meant by a "sterilisation installation." Such a simple plant is, however, sufficient to turn out some thousands of bottles a day.

For domestic purposes there are already several "home sterilisers"—practically tin boiling cans, very much like fish kettles, with a tin rack inside, so arranged as to keep the bottles in an upright position, and in the steam rather than in the boiling water. Milk is better if it is not actually boiled.

What Mr. Straus is trying to do is:—

1. To teach the people that raw milk kills.

2. For the present, and until they learn the better way of pasteurising, to persuade everyone to boil all milk.

Cow's Huge Yield of Milk.

Both the open milking trial and the butter test at the show of the Tunbridge Wells and South-Eastern Counties Society, which has just ended, were won (reports an English paper) by a cow belonging to Messrs. Green Bros., Goring, which gave the astonishing quantity of 77 lb. 12 oz., equivalent to more than seven and a half gallons of milk during the twenty-four hours. This milk was so rich in fat that the cream after separation produced 3 lb. 9½ oz. of butter. Messrs. Green's cow is a cross-bred brindle about eight years of age, one of her ancestors in all probability having been a Jersey.

News and Notes.

A cheese diet is said to be much more healthful than one of meat.

Dairy farms are most progressive when all manure is put back on the land.

A warm bed is worth many pounds of food during a spell of rough weather.

No matter how well bred an animal may be she cannot milk without a liberal supply of food.

In order that ensilage may keep well, maize should be cut about the time the kernels are well glazed and dented.

A heifer with her first calf will not usually milk for more than eight or nine months, unless she is exceptionally good.

Quite frequently heifers in their first and even second and third milking period do not come to their fully developed milking capacity.

To keep cows' teats from cracking, grease them once each week with vaseline. It will keep them soft, and save the poor brute considerable pain.

For lice on cattle sifted wood ashes is a good remedy; about half a bucketful well rubbed in will rid the beast of all the lice in less than a week.

Cheese was known to the Greeks before the time of Homer, and Cæsar relates that the German tribes supplied the Romans with cheese in his day.

Be honest with your cows and your customers and you will have no trouble in producing good cream and butter and always finding a ready market for both.

During wet weather let the cows have the fodder as fresh from the slide or cart as possible. Cattle will not eat sodden hay or other food that has been lying out in the rain for hours.

An eminent English doctor has advocated the consumption of pig's milk as quite peculiar in its qualities and the richest of all. We fear milkers would be scarcer than ever if their duties extended to milking Mrs. Pig.

Quick and clean milking is essential to successful milk production. When the hours of milking are irregular it is quite possible to obtain an average sample of mixed milk from a fairly large number of cows. Under these circumstances dairy-men should see that the milk from the whole herd is carefully mixed.

An Ayrshire cow, Rena Ross 14,539, owned and tested by Mr. John R. Valentine, Bryn Mawr, Pa., America, has just completed her year's record under the official direction of the Pennsylvania Experiment Station and the Ayrshire Breeders' Association and been admitted with a record of 15,072 lb. of milk and 75 lb. of butter. She is a strong, rugged cow, of great constitution, weighing about 1,100 lb.



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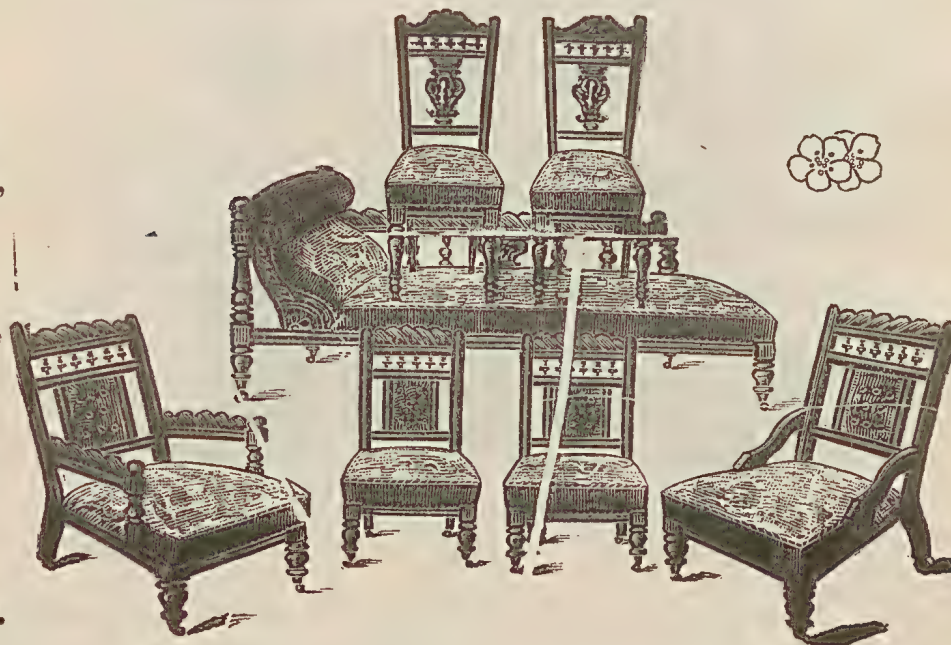
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Lady's Red Bird, freewheel, everything complete, £12
Gent's Electra, splendid value, £6
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Gent's Standard, 22-in. frame, very cheap, £7
Gent's Triumph, free wheel, £6 10s

Gent's New Rapid, thoroughly overhauled £7
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Gent's New Haven, 24-in. frame, new tyres, £6 10s
Gent's Ivanhoe, slightly used, £8
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6 Gent's Bicycles, pattern parts, £4 each

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The Poultry Yard

Diseases of Fowls.

(Continued from previous issues.)

G. BRAGSHAW, in the 'Agricultural Gazette of N.S.W.'

DIARRHOEA AND DYSENTERY.

—Diarrhoea.—

Diarrhoea is a discharge of excrement in a fluid or semi-fluid state. It is a very common complaint amongst fowls, and a symptom of several other diseases. We find it in birds affected with consumption of the bowels and liver, and is a pronounced symptom of cholera.

In adult fowls simple diarrhoea can be easily cured, but it is a terrible scourge amongst chickens reared in brooders, particularly in America, where it is called white diarrhoea.

Unwholesome food, sour or decayed vegetable matter, extreme heat, or impure water may be the cause. Feeding largely on bran may also bring on an attack. Irritants of many sorts may be picked up in the fowl's wanderings, and be responsible for the disease.

There are many and varied remedies. The affected fowls should be separated from the others, and the food supply reduced, rice or oatmeal boiled in milk being the best diet. A teaspoonful of olive oil should first be given. This may remove the irritant, if any, and allay any internal inflammation.

Prof. W. Hill recommends a teaspoonful of castor oil, followed by 5 grains of

rhubarb, 10 grains carbonate of soda, or 1 grain of opium. Chlorodyne, 3 to 6 drops in a dessertspoonful of water, is also recommended.

Mr. Tegetmeier, poultry editor, of the English Field, recommends—rhubarb, 5 grains; cayenne, 3 grains; to be given as a pill at night.

Other formulas are, a teaspoonful of castor oil mixed with 6 drops laudanum. Personally, I have found nothing more effective than teaspoonful of prepared chalk, mixed with pollard into a bolus about the size of one's little finger, and dropped down the bird's throat.

The following article on this disease was contributed by a medical authority to an English paper a few months ago:—

Diarrhoea may be simply an upset of digestive system, or it may be a symptom of some more serious disease. Simple diarrhoea may arise from the presence of some indigestible matter in the intestinal canal, or it may be due to exposure to heavy rain, or to draughts in the roosting house. Amongst the other causes may be enumerated the giving of sour or sloppy food, allowing the fowls access to water that has become heated by the sun, or that has been allowed to stand in the trough from day to day until it has become soiled with excrement and almost putrid. The too free use of animal food, or the irregular use of green food, may also be put down as common causes. When there is indigestible or decaying matter in the intestinal canal it is not advisable to suddenly stop the diarrhoea; consequently, the first efforts should be directed towards removing the offending matter. For this purpose the simplest thing to use is a small half teaspoonful of Epsom salts to each bird; this can be dissolved in the water which is used to mix the food. The food should be light nourishing, and well cooked, and if the diarrhoea is persistent, from four to six drops of chlorodyne will be found an unfailing cure; the same may be said of a few drops of spirits of camphor, about four drops for a small hen; but, personally, we prefer chlorodyne to anything else for the purpose. It may be observed that camphor is commonly used in the drinking

water of young chicks as a preventive of 'gapes,' and being an astringent, often gives rise to constipation and general upset of the digestive system.

The indiscriminate use of hard-boiled egg as food for young chickens and turkeys is responsible for many cases of this ailment. The long-continued use of egg in this form always leads to constipation followed by diarrhoea; hence many people condemn egg food for such young birds, when it is the method of using it that is entirely to blame. Even the much abused 'hard boiled' egg may be safely fed, provided it is so finely chopped that the chicks cannot easily separate the pieces of egg from the crumbs of oatmeal or biscuit-meal with which it is mixed.

A frequent case of diarrhoea with young birds is allowing them to drink sun-warmed water. If the water is supplied in a shallow vessel, which allows of the chickens standing in it, and so polluting it with their droppings, the soiled water soon goes putrid, and is almost poisonous to the chicks. In very hot weather the water vessel should be emptied and refilled twice daily; careful rearers give fresh water at each time of feeding, but such extreme care is not necessary if shade can be contrived for the water.

Where green food is given at irregular intervals, or where it is fed in quantity after it has been held for some time, or where meat is similarly used, bowel troubles may always be expected; when meat has caused the trouble, the droppings are often streaked with blood. For simple diarrhoea in chicken and turkey poults, the best food to use is rice boiled in milk until it is dry; this will often effect a cure without further treatment. In severe cases a couple of chlorodyne in a small quantity of milk, or on a bolus of bread and milk, may be given to each bird. In every instance the cause of the attack must be sought for and removed, or remedies will prove of little avail.

We have so far been dealing with simple diarrhoea, and to many people it may appear waste of time to notice such a trifling ailment. It is, however, well to point out that it may be just a passing derangement of the system due to any of

the above-named causes; but, on the other hand, it may be a symptom of far more serious and deadly diseases, such as tuberculous liver or cholera. Hence the need for care and vigilance; as instead of harmless the discharge from the bird may be a source of infection and a menace to the health of the entire flock.

In a well-managed poultry yard simple diarrhoea will rarely be found, except in occasional isolated cases; its presence is more frequently observed in yards where the feeding is irregular, and where the birds have to a great extent to look after themselves. The owners of such birds need not look for much profit, and will usually be found asking 'does poultry-keeping pay?'

—Dysentery.—

Dysentery is a more aggravated form of diarrhoea, and the odds are usually against the bird.

The risky dose of 10 drops of chlorodyne has, however, been reputed the means of saving some lives.

How to Increase Egg Production.

The following paper was read by Mr. T. B. Brooks, of the Agricultural Bureau (Clarendon Branch), and for which we are indebted to the 'Journal of Agriculture of S.A.' :—

Seven years ago pure-bred poultry was found on very few farms in South Australia, but since the inauguration of egg laying competitions a large number of farmers have taken on the pure-bred in preference to the common barndoor fowl. During the year 1907 over £106,000 worth of eggs were exported from this state, and this is not half the amount that would be available if a few of the following suggestions were put into practice:—Get your boys and girls to take an interest in poultry. Secure stock or eggs from a reliable breeder with the best laying strain procurable, and allow them to have for pocket-money the eggs sold. It is surprising how the children will take care of poultry when they have the profit. Don't allow the youngsters to keep more

than six (6) till they can show a good profit per bird over cost of food. The profit from a good laying strain should be 7s. 6d. per hen, made up as follows: 16½ doz. eggs at an average price of 11d. per doz., 15s. 2d.; cost of food for twelve months, 5s. 4d.; rearing to laying-age, 2s. 4d. These results can only be secured by having birds properly yarded with warm, comfortable houses, not roosting out on the farm implements or in trees. Some people insist that this is natural; so it is, but it isn't natural for a hen to lay 250 eggs in the year, and the hen that roosts in a tree will never do it.

Yards for laying birds require shelter from hot and cold winds; we use straw mats 2 ft. 6 in. high, and find these answer well. Birds in confinement require plenty of litter, such as straw or cocky-chaff, into which all grain should be thrown. This gives plenty of exercise—the more they have the better. A good scratcher is usually a good layer. The most important item is green feed. You can overfeed poultry with mash or grain but not with green stuff; give them all they eat, especially in summer. Mix the same amount (by measure) of chopped greenstuff as of bran and pollard in the morning-mash with a little meatscraps, meatmeal or cut greenbone added. The Government will soon have on the market a splendid line of meatmeal at a reasonable price, which will be a great boon to the poultry-farmer. Feeding poultry for heavy egg-production requires experience. Heavy feeding of the dairy cow results in a large flow of milk. Not so with the fowl; to feed all they will eat will fatten and reduce the egg-yield.

To be successful mate so as to secure more pullets than cockerels. I find that second-year hens mated to vigorous ten-months'-old cockerels give best results. From this mating recently I secured 35 pullets to 22 cockerels, and with ten-months'-old pullets mated same age cockerels result was just the reverse. The average farmer cannot spare time to trap-nest or single-pen his breeders, so I would advise to notice the first pullet in each clutch of chicks to lay an egg, or the first two. These should be marked by a

leg-ring for the breeding-pen. Another good plan is to watch your hens at moulting time; the bird that continues laying and carries her feathers longer than others of the same age is worth a place in the breeding-pen. This is the bird that lays when eggs are scarce and dear. The young stock may be reared by hens or the incubator and brooder. I prefer the latter. Women on the farm are usually good hands at rearing and caring for young chicks, and are usually very successful. Incubator chicks get a start, and are free from vermin. When reared with the hen she does the scratching, and the chick has to run round, and often through wet grass, and large numbers are lost annually this way. In the brooder the little chick scratches till it has eaten sufficient, then goes into the warm compartment for rest and sleep. Mash is not good for chicks under three weeks old, as it causes bowel troubles. Feed plenty of grain and all the fine chopped greenstuff the chicks can eat. I feed greenstuff the third day out of the shell.

For egg-production White Leghorns have proved themselves to be far superior to all others. This breed holds the 'world's record,' and secures bulk of prizes at all egg-laying competitions: being none sitters, they may be expected to keep on laying right through the year, and this is the class of fowl which, if properly treated, will greatly increase the egg-production of South Australia.

Poultry Brevities.

Keep one cock for ten to fifteen hens.

Hens lay best at the age of one to two years.

Let the fowls fast a few hours before killing.

The chick once stunted never fully recovers.

If hens do not eat with a relish something is wrong.

A lazy man makes a poor poultryman. So does the man who has failed at everything else, and takes up poultry-keeping 'because it is easy.'

Do Poultry Pay?

Yes, if you REGULARLY use

"KONDO" Poultry Food.

POULTRY FOR PROFIT is a very interesting subject, and one that is not yet definitely settled in this country. However, there is one thing certain, if Hens can be made to lay a large number of eggs, and they do not die from sickness, Poultry-keeping would pay, and pay very handsomely. "KONDO" Poultry Food will assist the former, and by keeping the birds healthy greatly reduces the latter.

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'S.T.'—The preparations are many and varied for the extermination of slugs, and may be obtained from any seedsman.

'Hedge.'—African Boxthorn should be sown in a bed in August, September, or October, and transplanted in the following Autumn.

'Ignoramus.'—Cucumbers should be sown from August to December, but October is the latest that the very long sorts should be sown.

'Way-Back.'—You probably mean Sheoak; its leaves are acid, and are often chewed by bushmen, as they stimulate the flow of saliva and temporarily quench thirst.

'J.L.' Crafers.—The respective quantities of hay chaff, oats, and bran required daily to feed a cow are:—Good hay chaff, 25-30 lbs.; crushed oats 3-4 lbs.; bran 3-4 lbs.

'Milky.'—It is not desirable to use 'preservative' for fresh butter, if the cream is well and properly ripened; the butter should keep long enough for the fresh butter trade without it.

'I.W.' Thebarton.—Worms are sometimes caused by giving the poultry too heavy a feed of green bone and fresh meat. For a flock of layers, an allowance of 1 oz. to each bird three times a week is quite sufficient.

'D.D.' Norwood.—Bitterness in the cucumber, lettuce, and other vegetables is generally attributed to the growth being checked in consequence of sudden changes of temperature, or dryness of the soil, causing stagnation, and that is evidently the cause in your case.

Always in Season.

"Boshter" Beer,

A Temperance Tonic, brewed from the finest hops grown, matured in our cellars.
A SPLENDID TABLE or SUPPER BEER
Cased and sent all over the State.
Awarded Two First Prizes, Adelaide.
First Prize and Silver Medal, Sydney.

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ANGAS ST., ADELAIDE.
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1s 6d Line. Bombay Blended in $\frac{1}{2}$ and 1 lb packets. 6 lb tins and upward 1s 1d per lb

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Pure China, good quality, 6lb and 10lb Boxes

1s 6d Line. Good flavor true Koolie Tea, 3 lb in packets, 40 lb in Chest 1s 1d per lb

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Shortbread, Chutnies, and Jellies.

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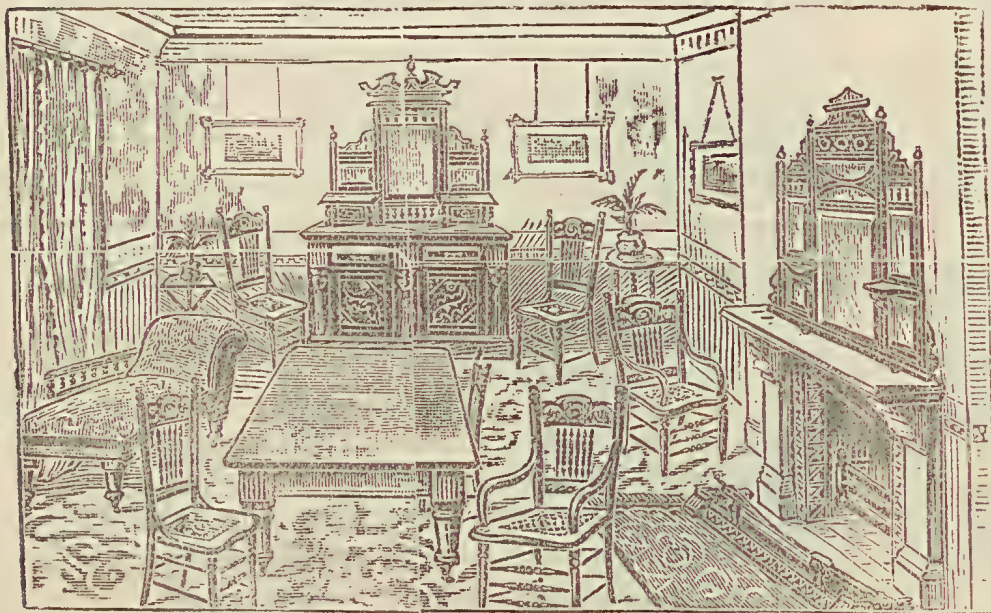


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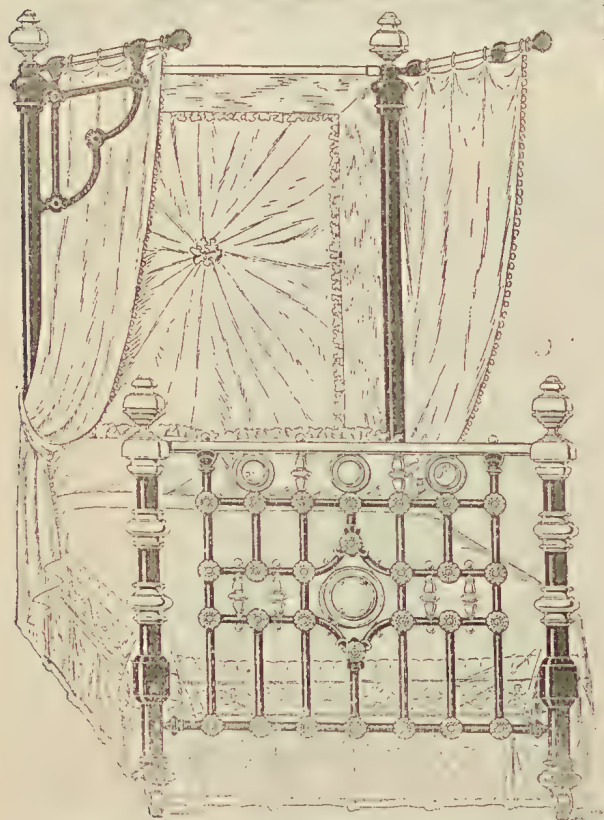


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- 1 Overmantle,
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- 8 yards Floorcloth,
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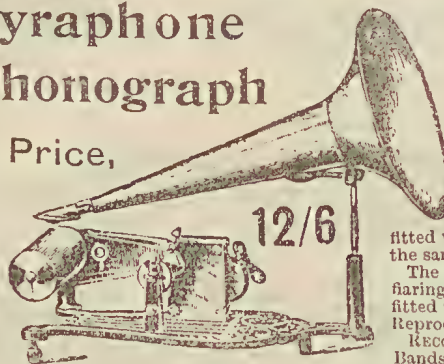


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Price,

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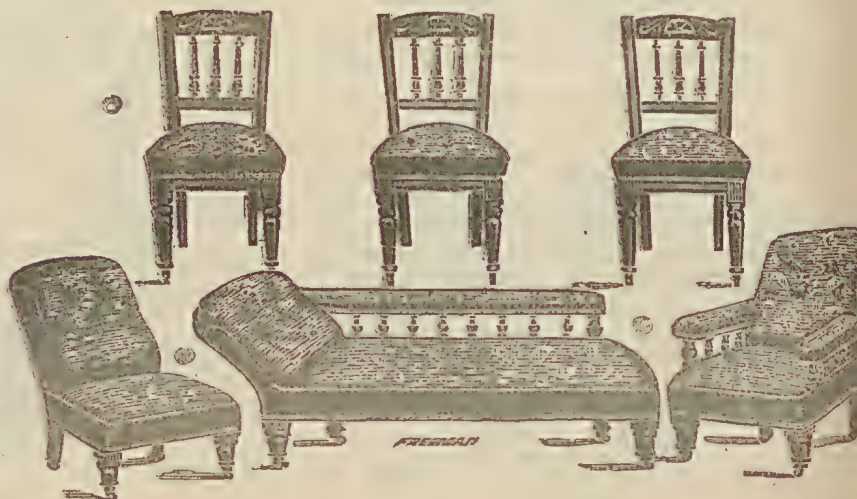
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THE SILENT MOTOR is simple, yet strong, the spring itself being of finest quality tempered steel. The governor, with latest pattern regulator, has complete control of the speed, ensuring a reproduction PERFECTLY IN TIME.

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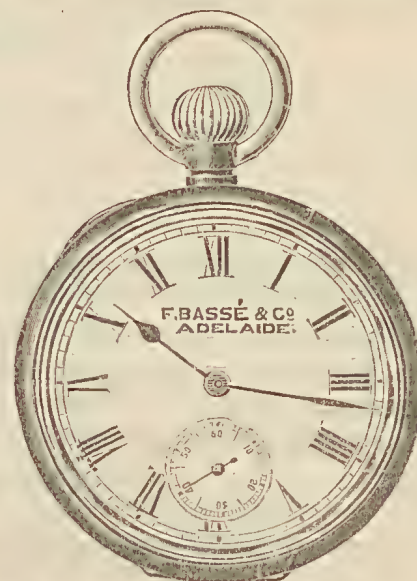
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This Watch is designed and constructed to last a lifetime. Its movement is perfect, embodying the newest discoveries in horological science. Although these Watches are sold at a price which brings them within the reach of all classes of the community, Cheapness has been attained not by the use of base and worthless materials; but by the exercise of a spirit of invention and by keeping the methods of manufacture well abreast of the times.

It is without exception THE BEST TIMEKEEPER IN THE WORLD. When time is money, a poor watch is worse than none at all, but a reliable one is a splendid investment and moreover not costly.

OBTAINABLE
ONLY FROM

F. BASSE & CO.,

Jewellers, Opticians, and Importers, 92 & 94 Rundle Street

WIT AND HUMOR.

He was a very aged man,
Of ninety years or more,
And at the thought of dying, he
Did wax exceeding sore.

And what did he, the aged man
To wholly calm his fears?
He robbed a safe, so they could give
Him ten or fifteen years!

Hairdresser's Assistant—'Theres one
thing that never causes me any sorrow to
part with.'

Hairdresser.—'And that is.'

Hairdresser's Assistant.—'A comb.'

'Why did you leave your last situation?'
a lady asked an applicant for the post of
housemaid?

'I got discharged, ma'am.'

Mistress—'Discharged? Then I'm afraid
you won't suit me. What were you dis-
charged for?' 'For doing well' ma'am.'

'Nonsense! What do you mean? Where
was your last place?'

'In the hospital!'

Benedict—'Miltons' wife left him,
didn't she?'

Bachelor—'So the story goes.'

Benedict—'Did he write anything after
that event?'

Bachelor—'Oh! Yes, 'Paradise Re-
gained'.'



MY JEWELLER,

G. W. Cox,

FOR

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AND

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Watches Cleaned from 2s. 6d.

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Beehive Corner
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“Proputty, Proputty sticks.”

Thus sings Tennyson's “Northern Farmer,” hearing the refrain in the hoof-beats of his horse.

YOU CANNOT DO BETTER than invest your surplus funds in land. Australia is on the up-grade, and the man who misses his chances now will regret it in a few years time.

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PROSPECT.—20 acres, suitable for sub-division, price £1,000, and easy terms can be made.

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COUNTRY LANDS, including 14,926 acres Cooke's Plains, 6,621 acres Coonalpyn, 1,853 acres Pinnaroo, 5,000 acres Yorke Peninsula (in lots), 110 acres, 4 miles from City, with Orangery, etc.

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Latest Goods arriving by every mailboat, also a very large stock carried to select from.

Our Mr. Gurr visits Country Districts every three months, North and South.

The Young Folks. Extension Ladders. Extension Steps.

In the Kitchen Garden.

'Pray, tell me why, the onion asked
'In all this blazing sun,
I should be wrapped in seven coats?
When I don't need but one?'

'I cannot see you, all my friends,'
The corn said, 'I am blind;
But, as for ears, no better ones
Than mine you'll ever find.'

Up jumped a little veg'table
Whose face was round and red;
'I'd like to see the man alive
I could not beet!' he said.

'Your faculties,' the pea-vine cried,
'Dear friends, I won't dispute;
But my 'bud has grown a pistil,
And I think it's going to shoot.'

'I never,' said carrot small
That grew beside the walk,
'Heard anything in all my life
The way those beans (s)talk!'

For fear that I should laugh aloud.
I had to run away.
I met those funny folk again
At dinner-time next day.

Conundrum.

WHAT IS IT?

An old fashioned enigma which has
puzzled many is the composition of Mrs
Barbault, the authoress. It runs thus:—
I always murmur, but I never weep
I always lie in bed, but I never sleep;
My mouth is wide, and larger than my
head,
And much disgorges, though 'tis never fed
I have no legs or feet—yet swiftly run,
And the more falls I get, move faster on.

The answer is: The river.

Rhymes for Cards and Other Presents.

I send to you this little card
As a token of kind regard.

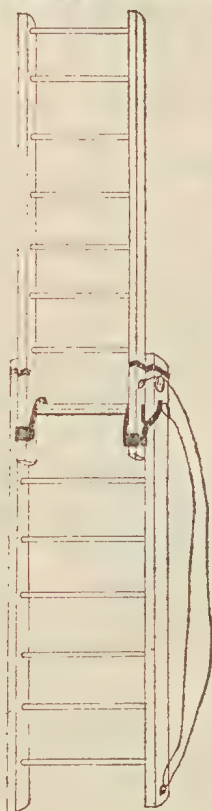
That you may recollect your friend
This postal card to you I send.

May every happiness come with the holly
Driving away distress, leaving you jolly.

This little card is sent to say
Bright be your home on Christmas day.

This Christmas card I send to you
A token of affection true.

Altho' the glad season may find us apart
Still you shall retain a warm place in my
heart.



One Ladder takes the place of Three,
where different lengths of ladder are
required.

Steps may be used either as either Steps
or Ladder.

STRONG. COMPACT. LIGHT.

Picked and Thoroughly Seasoned Material
only used in their construction.

Everybody who wants to Rise above the
Ordinary Level Should Use It.

Price.

10 foot Ladders	17s 6d
12 " "	21s
14 " "	24s 6d
16 " "	28s
18 " "	31s 6d
20 " "	35s
22 " "	38s 6d
24 " "	42s
26 " "	45s 6d
28 " "	49s
30 " "	52s 6d
Up to 50 " "	87s 6d

Price.

6 foot Steps	18s
7 " "	21s
8 " "	24s
9 " "	27s
10 " "	30s
11 " "	33s
12 " "	36s

Easy to Move Around.

Simple to Hoist.

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'Phone 1030.

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Probably there is no better known figure in the cycling trade of Adelaide than Mr. Geo. Craig, whose name is practically synonymous with the "Red Bird Cycle," which he has made a popular machine with the public. Starting in business 14 years ago at 221 Rundle Street, Mr. Craig built up a large business in bicycles, which resulted in the receipt of orders from all parts of the State, and even from Victoria. Recently his old premises were pulled down and an up-to-date structure, provided with spacious show windows, erected in its place. Here Mr. Craig has improved the new building to such an extent by means of mirrors and fittings that visitors to the shops are confronted with up-to-date conveniences and a multitudinous array of bicycles of all sorts. By far the larger portion of the stock are Red Bird machines, but there are also secondhand bicycles of almost every make. At the rear of the premises there is a well-fitted workshop in which repairs are executed and Craig machines built. Fourteen hands are employed at the shop.

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Messrs. F. Bassé & Co., the well known jewellers, of 92 and 94 Rundle Street have just opened up all their extensive shipments of novelties for the Xmas season, and will be pleased to forward a selection to any of their country clients, who are unable to visit their spacious showrooms to make a personal selection.

This firm make a special feature of Drop Necklets set with Australian Gems, and we particularly noticed some original and handsome designs in Green Tourmalines, and also in the pretty pink variety; the prices range from £3 upwards, and the value is undoubtedly excellent. An unexpensive line specially suitable for Xmas gifts in Turquoise Brooches specially took our fancy, and the patterns are very pretty and exclusive. There is also every variety of Gold Sleeve Links, Flexible Bangles, Bamboo, Nellie Stuart, and Fancy Buckle, and a splendid assortment of other patterns. If you are undecided as to what to give for presents write to F. Bassé & Co., who will help you to select.

THE ELECTRO-HYDROPATHIC INSTITUTE.

In connection with the Electro-Hydropathic Institute, Victoria Square east, Adelaide, there has been established the Adelaide Sanitarium at Nailsworth, one of the most elevated and healthiest suburbs of Adelaide. The line of treatment adopted is the same as that at the various Sanitaria throughout the United States of America and in almost all parts of the world. Nature's remedies only are employed, Hydrotherapy (Baths and Water Treatment), Electricity in the Electric Light Bath, Finsen Light, Local Electricity, etc., Massage and Swedish Exercises. Medical men admit that the treatment of diseases, especially those of a chronic nature by drugs, are very unsatisfactory. The symptoms are temporarily allayed; but the disease continues. That the drug treatment is unsatisfactory is evident from the ever-changing

remedies employed, the changes are quite as regular and varied as the fashions of the dressmaker, the drug employed one year is frequently altogether discarded when a new drug is brought on the market. All physicians recognise that it is Nature that cures and that if we wish health we must remove the obstructions to Her harmonious laws. Both in the Institute and the Sanitarium only the forces of Nature are employed. These remedies are yearly coming into more and more favour among the medical profession and the results are very gratifying.

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lose no time in joining one or other of the
Classes if you would ensure success.

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A Monthly Journal
Devoted to Bee Keeping.

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1904, by C. E. Hunn and L. H. Bailey.
4/; posted 4/4.

Works by L. H. Bailey.

Principles of Vegetable Gardening, 5th ed.
1906. 6/; posted 6/8.
Principles of Fruit Growing, 9th ed., 1906.
6/; posted 6/7.
Principles of Agriculture, 10th ed., 1906.
8/; posted, 8/11.
Garden Making, 11th ed., 1907. 5/; posted,
5/5.
Horticulturists' Rule Book, new and
revised ed., 1907. 3/6; posted. 3/10.
The Forcing Book, 6th ed., 1906. 5/;
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If you require a House, Farm, Orchard, or a Dairy it will pay you to get a list of my good assortment of properties. I have some lovely Orangeries, splendid Farms in choice and safe districts; also Handsome Gentlemen's Residences, and Cottages with Acres.

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A 5-Roomed House and 3 Acres, stables, etc. £280 for the freehold
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Note this! Terms in all cases can be arranged.

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PORT ADELAIDE—3 shops and 1 room each, brick, almost new, £650. Rents 33s. weekly, rates only £8 yearly. Pays well.

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PENNINGTON TERRACE, NORTH ADELAIDE—Residence, 6 rooms, bath, etc., stables, trapshed. £700.

January Number of

1909

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry),

CONTAINS—

Illustrations—

Neapolian Maize
Petunia
Gomphocarpus Arborescens
Variegated Japanese Hops
Ipomoea Sanguinea
Leedsii—Maggie May Daffodil

EDITORIAL.

The Vegetable Garden—

Operations for the Month
Pomato or Tomato, which?

Flower Garden—

Notes for the Month
Blue Roses
Flowers cure Insanity
Annuals and Biennals
About Daffodils
New Cineraria—Matador

The Orchard—

Fruit Tree Stocks
A Codlin Moth Parasite

Bee-Culture—

Advice to Beginners

The Farm—

Diseases of the Skin
The World's Biggest Farm
Interesting Wheat-Growing
Clipping Horses
Influence of Fertilizers upon Wheat
Miscellaneous Items
The Wheat Harvest

The Dairy—

The Cape Tulip
Testing Dairy Cows
Flies in the Dairy
Preservation of Milk

News and Notes

The Poultry Yard—

Diseases of Fowls
Interesting Statistics
Preparing Fowls for Show
Cold Storage of Eggs
Poultry Brevities

ANSWERS TO CORRESPONDENTS.

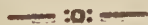
The Young Folks—

Marvels of Pond Life
Conundrums
Trade Dinners
From Rags to Rags
The Penny
&c., &c., &c.

The Lay of the Post Cart

WIT AND HUMOUR

EDITORIAL.



IN COMMON with all others of the community, the readers of "The Australian Gardener" rejoice at the prospect of electric cars in the city of Adelaide and suburbs. When the city makes a move the country goes with it, and what is good for one is good for both. The booming of the city is catching on, and the next boom will be in land. Already the country has had a great rise, and a large area changed hands during the last two years at greatly advanced prices. This is still going on, and little wonder, too, for one season with average luck covers at least half the purchase money of the land. Garden property is a fancy sort of holding at present. The prices paid for garden land is nearly double what it was a few years ago. The value of the land has increased according to the purchasing power of consumers. Many consumers are in a better position now to buy garden produce which they would previously have done without.

The garden producer has a very up and down market to deal with. In fact one of the chief factors in determining the market is the weather. November was a record month for heat, and December for dryness. Nobody realised this more fully than the strawberry growers. The strawberry season opened up beautifully, and the fruit brought to the market in the early part of the picking was the finest we have seen. The Margarets came on beautifully with fine rich berries pushed on by the early Gandy plant, which is now set out with the Margarets to get early fruit. The two did well together, and most of the money this season was made out of these two varieties. The hot weather came on apace and ripened up the Arthurs, but beat the pickers, who soon found that the absence of an inch of rain meant the ripening of fruit before it could develop, and so they were cut out of the market. The second crop went with the tail end of the first. Tons of strawberries were lost this season through the lack of rain.

Peas were much in the same position as strawberries. The plains crop came all in a heap and caused a slump, but a sudden rise came because the hills growers had no rain to back up the supplies. A bad year for peas, except for the favored few who can irrigate and keep up a rotation of crops.

The cherry-growers had a good innings, but the fruit was not what it would have been had the heat wave hung off a bit. The fruit ripened too quickly, before it had time to develop into the fine sample we so frequently see in the Adelaide market.

Tomato-growers are not heard complaining because the weather suits them nicely, and we now have the luscious vegetable on the market at a reasonable price.

Apples and pears are coming on fast, although the exporters are not expecting so much that they will not be able to handle them comfortably. It is to be hoped that the growers will take to heart the good advice given from the markets abroad, which means that if they are going to hold price against the active competitors from America they will have to do it on quality and grading. Growers must realise that the best is the only quality worth growing.

The recent rains will do incalculable good to the gardens and orchards.

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MAIZE—NEAPOLITAN.

The Vegetable Garden.

Operations for the Month

The growing of vegetables becomes rather difficult during the hot dry months of summer in those parts of the State where the supplies of water are insufficient to permit of the watering of the plants. In such cases the best method to adopt is to cultivate the surface of the soil between the vegetables as frequently as possible, no matter how dry and dusty the soil may be. For this purpose the Planet Jr. hand-hoe will be found most effective, but if this cannot be obtained, an ordinary hoe or a good well-set Dutch-hoe will answer the purpose, but the work cannot be carried on perhaps quite so speedily.

A heavy mulch of farm-yard manure will prevent evaporation and serve as useful plant food as well, and when dug into the soil after it has served its purpose as a mulch will prove valuable not only as plant-food, but, during its process of rotting, will perform important work in making the soil better adapted for plant growth.

Beans, French or Kidney. — This vegetable may be sown to as great an extent as may be required. The best plan to adopt is to sow a row or two

once a week, or perhaps it would be better to sow a row, wait until the plants have come up, then sow another row, and so on. The ground should be well dug in the first instance, and if it is not naturally sufficiently rich, it should be heavily manured with well-rotted farm-yard manure. It may be as well to state that if the so-called chemical or artificial manures are used, sulphate of ammonia, nitrate of soda, or manures known as nitrogenous or ammoniacal manures, are of little if any use for French beans. Lime, gypsum, potash, or sulphate of lime are the best substances to apply, but it is hardly possible to do better than use plenty of well-rotted stable or farm-yard manure. When sowing, make drills about 2 feet apart for tall-growing varieties, and sow the beans about four inches apart in the drills, covering the seeds $1\frac{1}{2}$ inches deep.

Beet, Silver. — Sow a row or two of seed in well dug up ground, and transplant from the seed-bed if there are any plants large enough to move. The leaves only of this plant are used, and they make a very palatable dish, if properly boiled.

Borecole or Kale. — Make early sowings. It belongs to the Brassica or

cabbage family. The seed should be sown in seed-beds or boxes, and the seedlings afterwards transplanted. The soil should be made rich with well-rotted stable manure. Plant in rows two feet apart each way.

Broccoli. — This resembles the cauliflower, and might easily be mistaken for it; in point of fact, it is a variety which takes longer to arrive at maturity, and there are other differences which are very apparent to one used to growing vegetables. It should be sown either in boxes or a seed-bed, which should be shaded and watered. When the plants are strong and hardy they should be planted out, about 3 or 4 inches apart, in a small, well-prepared bed, in order that they may develop well for further planting out in their permanent places.

Brussels Sprouts. — This is another and excellent variety of the cabbage, but which differs in a most marked degree from that vegetable. The stem grows to a considerable height, and bears numbers of miniature cabbages. It is very suitable for cool districts and should be grown wherever it will thrive, for it is one of the best of vegetables, and can be grown as easily as an ordinary cabbage. Seed should be sown in a box or seed-bed, and every care should be taken in watering and shading sufficiently. When the plants are large enough they should be moved to well dug up but not too heavily manured ground that has been prepared for them. The growth should not be too rank, and the plants must not be forced, or else the young sprouts will not form well. If the ground is naturally rich it may, perhaps, be well not to apply manure. However, if they do not thrive, manure can easily be applied in a liquid form. Plant in rows about two feet six inches apart. The plants to stand about two feet from each other in the rows.

Cabbage. — Sow a little seed occasionally, not much at a time, but just sufficient to keep up a continuous supply of plants. Plant out a few strong young cabbages from the seed-bed to some well-manured ground.

Cauliflower.—Sow a small quantity of seed for future supplies in a seed-bed or box where it can be shaded or watered easily, and transplant all the plants you have ready. In the first place, prepare some ground by trenching if possible, or deep digging, and thoroughly well manuring, mixing in the manure well. If the soil is dug or trenched deep the roots of the cauliflowers can descend to a considerable depth in search of food, and are not likely then to suffer from dry weather. Select good strong sturdy plants and set them about three feet apart each way. Do not break or injure the roots more than can be avoided when raising the plants from the seed-bed.

Celery, Red and White.—A little seed may be sown during the month so as to have a supply available if required.

Celeraic, or Turnip-Rooted Celery.—This is a variety of the ordinary celery, but the root has become, by cultivation and selection, like a turnip in appearance, and this turnip-like root is used instead of leaf-stalks. It is a most delicious vegetable, and is eaten either raw or boiled. Sow in a box of nicely prepared soil. Prick out, like celery. When the plants are about six inches high, plant out in rich free soil, in rows 18 inches apart and a foot in the rows.

Cress and Mustard.—Sow a little seed occasionally to keep up a supply. Make the ground rich with well-rotted manure, and take means to make the bed somewhat below the surface of the surrounding ground.

Kohl Rabi, or Turnip-Rooted Cabbage.—A few seeds may be sown, but it is not advisable to grow it to any extent until it is ascertained that the family cares for it. Sow and plant as for cabbage. Cut when the swelling is from three to four inches in diameter.

Melons, &c.—Give plenty of water and liquid manure to melons while the fruit is growing and swelling, but lessen the supplies as they begin to show signs of ripening. Melons require to be artificially fertilised when in flower. Cucumbers, marrows, and pumpkins want even more abundant supplies of water. All this family is benefitted by having their

growth regulated, stopped, and thinned. Pinch the fruit-bearing shoots a joint or so beyond the fruit, and in the case of a heavy crop of melons thin out the fruit. Cut marrows and cucumbers when they have attained about half their normal size. The flavor is incomparably superior at this stage. Some gardeners aim at the production of large marrows, but this is a huge mistake. A single plant will only develop two or three large fruits, which, when cooked, are of little value for the table, but scores of small marrows, of the best quality, may be cut from one plant, provided they are taken when only a few inches in length. A marrow should be cooked entire, if it is cut much of its delicate flavor is lost. Even if the plants are not wanted at the time that they are ready, they should be cut, and so induce the plant to furnish for a longer period a succession of young marrows.

Potatoes.—Prepare a bed for planting by deep digging, well draining, and heavily manuring. When ready, plant some variety of the kidney potato. Use medium-sized whole tubers, for they will probably succeed better than large ones cut into two or more pieces. The rows should be from 2 ft. 6 in. to 3 feet apart.

Radish.—Sow a little seed from time to time and use the plants as quickly as they are ready. A supply of this vegetable, if young and tender, is always useful. If well grown the tender leaves may be eaten as well as the root. Make the ground fine and manure well with rotten dung. Sow in little rows, thin out, and keep free from weeds.

Rape.—Sow a little of this useful vegetable in light rich soil in drills half an inch deep and 8 inches apart, and sow thickly.

Savoy.—Sow a little seed. This is one of the best of the cabbage class, which will succeed to the greatest perfection in rather cool districts, although it may be grown in almost any part of the State.

Tomatoes.—In most gardens there should be good supplies of nice ripe fruit. Some means should be adopted to keep the branches or vines from lying on the ground and thus rotting the fruit.

They are awkward plants to tie up if allowed to attain full growth before the tying up is attempted. The work should be done as they grow. Bundles of sticks, prunings of fruit trees, or dead branches of trees can be spread under the plants, and this will answer in a rough way to serve the purpose.

The month of January is generally considered to be an 'off' month for vegetables, and there is often a scarcity if the weather proves dry; but, with a little care and trouble, if a good supply of water is available, quite sufficient may be raised for all requirements.

Pomato or Tomato, Which ?

Oscar Soderholm, foreman at the greenhouses of H. F. Littlefield, Worcester, Mass., has a genius for experimenting. Recently Mr. Soderholm grafted Lorillard tomato plants on to potato vines. Now, he has a number of double plants; above ground we found tomato plants 6 feet high, still growing rapidly and full of green and ripe tomatoes. On the other end, in the ground, there are potatoes the size of an egg. There are no potato vines in sight, excepting those growing from the new potatoes for, strange to say, the potatoes, instead of ripening, are sprouting.—'Florists' Exchange.'

The attention of our readers is called to the Income Tax Returns advertisement appearing in our columns. Forms of returns are to be had at all post offices. Returns must be sent in at once (except those of farmers only, which are to be in on or before May 1), and postage in all cases must be prepaid. Fines and interest will be imposed upon assessment of late returns, and no remission will be made of same.

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PRIMULA (Chinese Primrose).



Primula, Large Flowering Fringed, mixed, 1s packet

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Primula, Double Fringed, finest mixed, 1s 6d packet

Auricula, Choice Alpine, mixed, 6d packet

Polyanthus Primrose, "Royal London Parks," lovely shades of crimson-maroon, rich purple and deep orange, passing to palest primrose and white, 1s packet

Calceolaria, Splendid Large Flowered Tigred and Self-colored, 1s packet

Cineraria, choice mixed, 1s packet; fine mixed, 6d pkt.

Cineraria, Large Flowering Dwarf Compact, prize varieties, extra choice mixed 2s 6d packet

Cyclamen, Hackett's Giant Flowered, mixed, 1s and 2s 6d packet

Cyclamen Persicum, mixed, 6d packet

Tuberous Begonias, "International Prize," Single and Double, unrivalled strain, 2s 6d packet
Also, Single, 1s packet; Double, 1s 6d packet

Pansy, English and Scotch, Finest Large Flowered, 1s packet

Pansy, Mammoth Parisian, 1s packet

Pansy, Exhibition Varieties, extra choice, 2s packet
Also Packets of mixed Pansy Seed at 3d and 6d.



Polyanthus Primroses, Royal London Parks.

E. & W. HACKETT,

Wholesale and Retail Seedsmen and Nurserymen,
73 RUNDLE STREET, ADELAIDE. Telephone 350



PETUNIA.

Petunias are highly ornamental, profuse blooming, easily cultivated garden favorites, effective and beautiful for the decoration of the greenhouse, while for planting out in beds or mixed borders they are unsurpassed. The brilliancy and variety of color, combined with the duration of their blooming period, renders them invaluable.

Sow in March, April, or May, also in August, September, and October, in nice light soil, in shallow pans; cover very lightly, and place in a frame or greenhouse. When the seedlings come up, and as soon as they can be handled, prick out into similar pans rather thinly. When they have made three or four leaves, pot singly into small pots. If they are intended to be grown in pots, repot, when large enough, into six or seven inch pots, to flower in, or else plant them out into the ground



GOMPHOCARPUS ARBORESCENS.

This is a hardy perennial introduced from Natal. It is very remarkable and picturesque. The leaves and flowers resemble the well-known Waxflower (*Hoya Carnosa*). They grow to a height of 2½ feet.

Sow in March, April, or May; also in September, October and November.

Moments worth waiting, worth striving for.

Dahlias and cannas are a host in themselves for decorative purposes, but the luxuriant growth and wealth of blooms we desire above all things in them can only be encouraged and maintained by liberal supplies of water. In the case of the former, where the soil has not been well enriched frequent supplies of liquid manure should be given. Dahlias must be secured to stout stakes, one to each stem; their effect is spoilt at once if they are allowed to flop.

With smaller annuals it is better to rely on close planting, by which they support each other, and due attention to strengthening growth by pinching them to have the garden bristling with stakes.

Daffodils require to be planted in fresh soil occasionally. Three years are considered long enough for the bulbs to occupy a bed or patch. The bulbs may be lifted after the death of the foliage and be immediately replanted, or dried and stored until February. Ground for

The Flower Garden.

Notes for the Month.

There should be no lack of color in the garden in January. We are now being rewarded for our labor by a wealth and profusion of bloom. We have but to maintain it through the hot trying months to follow. The operation of watering has become tedious and monotonous in the extreme, but if anything can afford us consolation it is the magical

effect it has on the drooping flower and flagging leaf after blistering sun and withering wind have done their worst. There is often a lull towards evening, and in the softening light that follows the sunset, in the moisture laden atmosphere we have credited, when the cooling spray of the hose has called back the color to the plants with an additional intensity, and caused a perfumed incense to ascend from the flowers, we are rewarded by rare moments of enjoyment.





VARIEGATED JAPANESE HOPS.



IPOMŒA SANGUINEA.

The *Ipomœas* are beautiful climbers; valuable for covering trellises, fences, &c.

Sow in July or August in pans in a slight heat, either in a hot-bed or greenhouse, and, when strong enough, prick out into a cool frame, where they may get hardened and well established for transplanting into their blooming quarters in September; or they may be sown in the open during September and October.

Cyclamen, Primula, Begonias and Gloxina.

Carnations and verbenas can be layered now to increase them.

If seed vessels are to be saved they must be carefully watched as the ripening season approaches, but if a prolonged period of bloom is desired the plants should be relieved of all dead flowers.

Remove the dead leaves of bulbs as they dry up, but do not cut them off whilst they are in a green state. It would be well to put in two or three sticks around the bulbs to prevent them being destroyed when digging up the garden. Examine bulbs that are lifted and see they are not damp, or they will soon become mouldy and injured.

Chrysanthemums will need good supplies of water, and also weak liquid manure. The plants had better be well mulched with farmyard manure.

Small plants—cowslips, daisies, polyanthus, &c.—if allowed to remain in the garden fully exposed to the hot sun, will probably die. They had better be watered, and removed to a cool, shady

the reception of the bulbs later should be prepared soon. In very poor dry soils a dressing of cow manure may be dug deeply into the beds or patches, and a little bone-dust worked through the soil nearer the surface.

Many roses will cast their leaves about this time of the year, especially if the weather is dry. They may be pruned back, just as if it were winter or early spring, and the plants will produce good flowers in the autumn. This is a good time for budding roses, if it be desired to increase the stock of plants. Take buds from those it is desired to propagate, and insert in a seedling briar stock. In some cases, with Marechal Neil for instance, the Banksia can be employed. Tea roses judiciously pruned at this season will be

encouraged to produce better blooms in the autumn. Much of this pruning can be done when the flowers are cut if care is taken always to cut back to a strong outside bud. Many plants can be induced to bloom continually if they are occasionally sheaved over. It is generally easy to see when this method will answer by the fresh growth that is always found springing up from the base. Coreopsis and antirrhinums can be thus dealt with.

Cuttings can now be taken of verbenas phloxes, antirrhinums, pentstemons lantanas, pelargoniums, petunias, and the side shoots of pansies and hollyhocks. Choose nice short-pointed wood for cuttings.

Sow Balsam, Calceolaria, Cineraria,

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place for the remainder of the summer, and can be replanted in their old situations in the winter or early spring.

Blue Roses.

Experts in plant-breeding hold that it is impossible to obtain a blue rose. There is no wild rose with any blue in it. Had there been there would have been little difficulty in breeding a garden rose of that colour. Meanwhile, there occurs, from time to time, a rumor that the blue rose has at last come. It is now stated that Germany has produced a blue rose, and plants of it may be purchased at 10/- each. This is what is said of it:—'After years of striving the rose-breeder has at last succeeded in obtaining a blue rose of a character calculated to cause excitement amongst rose fanciers. It is a sport from Crimson Rambler, with flowers of a blue color, produced in large clusters, which at first are colored lilac, changing with age to amethyst-blue, and finally to steel blue, the color of the March violet. The stamens are yellow, and show up conspicuously against the blue of the petals. The leaves are glossy green, and sparsely clothed with thorns. So far, it has not been attacked by mildew. There is a prospect of obtaining a rose of clear

cornflower-blue color by using this as a breeder, along with the larger-flowered roses.'

Flowers Cure Insanity.

There seems to be no end to what may be expected in the line of new treatments for various diseases. The latest is the 'flower cure' for insane patients, which is being tried at one of New York's great asylums. Common or garden flowers are the medium used and experiments are being carried on to determine the psychological value of various blossoms in the treatment of patients. It has been found that flowers are of great benefit to the insane, and the product of the large greenhouses which are maintained is scattered through the asylum in profusion. In some cases a single rose has been found to be more efficacious in its soothing effect than opiates and strait-jackets. The beneficial influence of flowers, while never absent, it is asserted, varies in different individuals, women as a rule being more susceptible than men. Color in various blossoms seems to be a prime factor in the new treatment, although experiments have not reached the point where a certain flower can be

prescribed for a certain kind of mental affliction.

Probably this may account for the paucity of 'lunatic' individuals found among those engaged in the florist business.—'Florists' Exchange.'

SOUTH  AUSTRALIA

General Income Tax Returns Are Now Due.

Except those of farmers only, which are due on or before the 1st May.

FORMS OF RETURNS are to be had at all Post Offices.

Postages MUST BE PREPAID in every instance.

FINES and INTEREST will be imposed upon Assessments of late returns and no remission will be made of same.

J. G. RUSSELL
Commissioner of Taxes.

January 1st, 1909.

COMMERCIAL AND ORNAMENTAL PRINTING of every description in first-class style, on the shortest notice, and at cheapest rates, at the "Australian Gardener" Office, corner of Pirie and Wyatt streets.



NOTICE TO FRUIT AND PLANT DEALERS.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.
2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.
3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.
4. No plants other than those growing in pots having soil attached to their roots will be admitted.
5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.
6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.
7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.
8. No plants or portions thereof will be admitted from any State or country where phylloxera exists unless accompanied by a declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in the exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phylloxera exists or has existed in the plantation from which the plants originated.
9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.
10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace.

L. O'LOUGHLIN, Minister of Agriculture.

Government Poultry Station.

Agricultural College, Roseworthy.

Eggs and Chickens for Sale during Season.

Black Orpington, Buff Orpington, and Indian Game—Eggs, 15s., Chickens, 30s. a dozen.

Silver Wyandottes, Faverolles, Minorca, White Wyandotte, White Leghorn, Old English Game—Eggs, 10s., Chickens, 21s. a dozen.

Table Birds—Eggs from various crosses, 8s. when available.

Settings will be 15 eggs and no replacements.

Chickens at a month old.

The stock is of first-class quality and vigorous.

For further particulars apply to the Poultry Expert, Crown Lands Offices, or the Poultry Superintendent, Agricultural College, Roseworthy.

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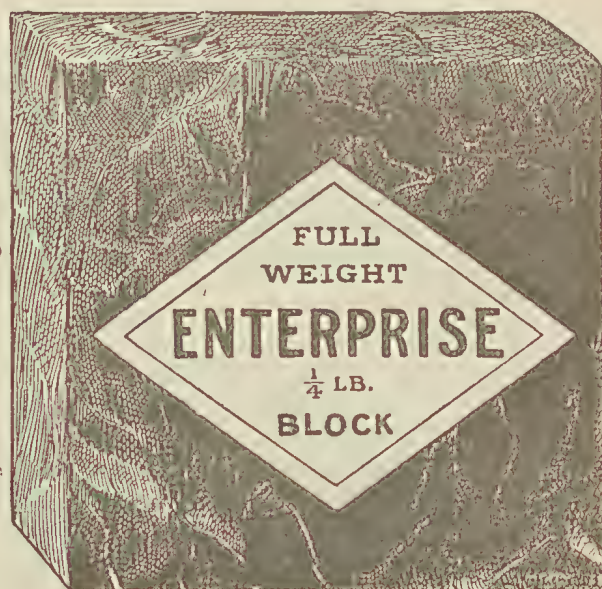
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Annuals and Biennials.

By J. Cronin, in Victorian "Journal of Agriculture."

Annuals are plants that develop from seeds, mature their growth, blossom, produce seeds, and die within one year. Biennials differ from annuals in that two years are required for the cycle from seeds sown to seeds saved from the resultant plants, maturing their growth in the first year, and flowering, producing their seeds, and dying in the second.

A number of plants that are perennial in habit of growth are classed as annuals by gardeners, and treated as such on account of ease of culture, as well as increase of vigour, in the young seedling plant as compared with the growth produced by the perennial after a debilitating season of growth and bloom. It is much easier and more profitable to raise pansies, Iceland poppies, and other plants that are true perennials from seeds each season than to save them during a hot and dry summer. Annuals are classified as hardy or half hardy, according to their powers of resistance to frost and adverse weather conditions generally. Many kinds are native to tropical or semi tropical regions and while they are damaged or destroyed by the ordinary winter conditions obtaining in the greater part of Victoria will endure considerable heat and sunshine, if supplied with sufficient moisture.

There is a decided and merited increase latterly in the culture of many of the most popular annual and biennial plants, their presence in most gardens, when well grown, insuring a display of bright or sweetly perfumed flowers during the greater part of the warm season of the year, when the more permanent occupants are devoid of blooms. In response to the demand that has arisen for young plants for transplanting, nurserymen in various parts of the States have devoted considerable space and time to the raising of the most popular lines, and a trade in annuals, &c., has been built up in recent years that returns a large revenue to those engaged in it. This trade has been facilitated by the excellent parcel post arrangements, it being possible to obtain young plants, in fresh, vigorous condition when properly packed, in any part of the State, from nurserymen located in the metropolis, or important provincial towns.

—Raising Annuals, &c., from Seed.—

Nurserymen and proficient gardeners experience very little difficulty in raising plants from good seeds, but the novice often fails on account of ignorance of the necessary conditions for their propagation. The first condition necessary towards success is good fresh seed, it being as reasonable to expect to get a

chicken from an addled egg as a plant from a seed that has lost its germinating power through old age. Seeds require a moderate moisture and warmth to insure germination, and also comparative absence of light and presence of air in the soil. A well tilled and finely divided loam or a light sandy soil, fairly provided with humus, supplies the requisite conditions generally. Good drainage insures soil aeration, and the soil covering that is placed over the seeds, the necessary exclusion of light.

Many annual plants will not thrive if disturbed by transplanting, mignonette being an example. In such cases the seeds should be sown thinly in the garden beds; but the majority of kinds transplant well and it is generally most convenient to raise the plants in small beds, boxes, &c., and, when they are sufficiently large, to transfer them to their flowering quarters. A few shallow boxes and a small quantity of light porous soil is often the only equipment of some of the 'small' trade growers, and it is astonishing what large quantities of plants are raised in such places during one year. The boxes are perforated and thoroughly drained by placing about two inches of coarse silt over the bottom, then the soil is placed in them and pressed fairly firm. The surface is made smooth and even and the seeds sown evenly and thinly and covered with light sifted soil to a depth agreeing with the size of seeds. Very fine seeds should be merely covered, those moderate in size, which includes most flowering annuals as stocks, phlox, &c., to a depth of about half an inch, while larger seeds such as sweet peas, large sunflowers, &c., require to be covered by at least two inches of soil to insure sufficient moisture to soften the seeds and promote germination. The soil used should be damp, but not wet or sticky, to sow the seeds on, but the covering soil should be rather dry.

No manure is necessary to the germination of the seed or the welfare of the young plant until it is transplanted, and it is often on account of the use of organic manure or fertilisers in the seed beds that failure has resulted. More sturdy and hardy plants are raised when the soil is comparatively poor and dry. The roots of such plants are more fibrous in character than those of plants grown in rich soil and liberally watered, and can be transplanted with a prospect of success, if the soil that they are transplanted in is in good condition and supplied with plant food. Watering seed beds is also a frequent cause of failure. If the soil is moderately moist, little, if any, water is required until the plants appear, and in case of palpable need of water it should be applied gently through a fine rose nozzle. A heavy, splashing, watering will produce a caked surface through which the young plants cannot penetrate.

—Soil Preparation and Planting.—

The secret of the cultivation of the fine

flowers seen at exhibitions is a thorough preparation of the soil. It is commonly the fate of annuals to be planted in poor, cloddy, soil that has been robbed by large shrubs or trees of all moisture and plant food it contained. Under such conditions poor results are certain, but if a position is selected free from root invasion and in good sunlight, and the soil is deeply worked and well manured, and afterwards cultivated and watered when necessary, strong plants and fine flowers will develop if the variety is a good one and suitable to the place.

A succession of plantings of various annuals may be made while moderately moist conditions prevail in spring, the best results being obtained from plants that have been set out fairly early while the soil and the air were moist and the weather cool. The plant should not be allowed to grow in the seed beds or boxes until they are drawn and weakly, but should be transplanted when about an inch or slightly more in height, if the kind is capable of resisting the climatic influence likely to occur. Sufficient room should be allowed for each plant to enable it to obtain its maximum size. A very common error is to plant closely to 'cover the ground' quickly. The plants consequently are starved and, if such is the cultivator's ideal, it would be waste to purchase seeds or plants of good kinds or varieties. To prolong the season of blooming, the flowers of free seeding annual plants should be cut as soon as they are fading, thus preventing the formation of seeds which would quickly terminate the flowering period if permitted.

—Selection of Kinds.—

Individual taste and local conditions generally determine the choice of all plants. In the case of annuals and biennials, the cultivator has a wide range of plants and seeds to choose from and should be guided in a great measure by results obtained locally. Among the most valuable and popular annuals:—are Sweet peas, phlox Drummondii, cornflowers, poppies, larkspurs, coreopsis, mignonette, lupins, sweet sultan, sunflowers, nasturtiums, stocks, nemesias, asters, zinnias, salpiglossis, cockscomb, amaranthus, Sturt's desert pea, various everlasting flowers, and annual grasses. Biennial plants worthy of culture include:—Foxgloves, Canterbury bells, wallflowers, stocks of the Brompton class, leptosyne, &c.

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"LEEDSII.—MAGGIE MAY."
White perianth. Pale citron frilled cups.

About Daffodils.

'He that hath two cakes of bread, let him sell one of them for flowers of Narcissus; for bread is the food for the body, but Narcissus is the food of the soul.' These are the words of Mahomet, and they have been taken to heart by Englishmen, to whom Daffodils, that 'come before the swallow dares,' and Narcissi, the poets' type of maiden purity and beauty, have become of considerable commercial importance, and also as beloved for their beauty and fragrance as the Rose itself.

Of all English plants and the true Daffodil (*N. Pseudo-narcissus*) is wild in copses and moist woods throughout

England—none have been in such constant favor as the Daffodil, which was a favorite garden flower with our ancestors, and especially as the flower for making garlands. The Rev. Canon Ellacombe, in his delightful book, 'The Plantlore of Shakespeare,' says it has been the favorite of all English poets from the time of Shakespeare, and even before, for Spenser spoke of 'the green strowed round with Daffodondillies.'

The botanical name adopted by Linnaeus for the whole family of Daffodils is of mythological origin. Narcissus was a beautiful youth who preferred gazing at his own reflection in the water to the charms of the nymph Echo, and as a punishment for his vanity he was changed by Nemesis, the goddess of justice and punishment, into a flower:

'And looking for his corse they only found
A rising stalk with yellow blossoms crowned.'

The praises of Narcissi have been sung by the greatest of poets for ages, and the flowers have been loved by the gardeners of the old country for at least three hundred years. Shakspeare, however, never saw any flowers such as 'Emperor,' 'Glory of Leiden,' 'Ellen Willmott,' 'Maggie May,' or 'Will Scarlet.' By the side of these his Daffadilly is as a stage-coach to a steam engine.

Over 250 years ago Parkinson had anticipated Mr Peter Barr (acknowledged in England as the Daffodil king) in employing Pyrenean 'root-collectors' and described some hundred kinds of Daffodil. The magic art of cross fertilisation was then undreamt of; and the possibilities latent in Parkinson's store awaited the coming of Herbert first Dean of Manchester. Herbert, who in one side of his versatile genius was something of a pre-Darwinian Darwin, published in 1843 the results of his many years' experiments at his Yorkshire rectory at Spofforth, and demonstrated that short-crowned Narcissi are really hybrids between the trumpet Daffodils and the poet's Narcissus, *N. poeticus*. The first to avail themselves of this discovery were Mr. Leeds of Manchester and Mr. Backhouse of Walsingham. By crossing and re-crossing they obtained the host of lovely forms now in common cultivation. These are being used by the breeders of to-day for the further elevation of size, form, and color. Leeds sold his entire collection for a hundred guineas, but twenty times that amount would now be thought a small price. The glorious *N. bicolor Horsfieldii* raised by John Horsfield, the Lancashire weaver, was sold by auction for eighteenpence per bulb.

Compare with these prices that realised by Mr. Engleheart's seedling 'Will Scarlet,' three bulbs of which fetched a hundred guineas, whilst such sorts as 'Weardale Perfection,' 'King Arthur,' and 'Hodsock Pride' cannot be bought under about £18 a bulb, 'Maggie May' (illustrated) costs 15 guineas, 'Duke of Bedford' twelve guineas, 'Big Ben' ten guineas, whilst no money could secure a bulb of 'Ellen Willmott.'

All Daffodils are not expensive; on the contrary, many of the most beautiful of the older sorts may be bought for a few shillings per hundred. To the inexperienced there is little or no difference between 'Duke of Bedford' at twelve guineas and 'Bicolor Grandis' at three halfpence; they are Daffodils and nothing more. But there are differences recognised by experts and indicated by the prices, and when the enthusiastic beginner has mastered the rudimentary stages and 'got his eye in' he will be in a position to undertake the most fascinating, exciting, and, in some cases, the most profitable of all operations in all horticulture—namely, the creation of new flowers by crossing one sort with another.

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The Orchard.

Fruit Tree Stocks.

By C. T. Cole, Inspector, Vegetation Diseases Acts, Victoria, in the 'Journal of Agriculture,' Victoria.

What the foundation is to a house, the stock is to a fruit tree, and if trees are worked on unsuitable stocks disappointment will result, the tree will cease to be healthy and vigorous, and ultimately die or become useless.

Apple.—In Australia, we have made quite a new departure with regard to apple stocks. In the Old Country the seedling apple, or more commonly termed the crab stock, is the one used by nurserymen and orchardist, except in the case of dwarf apple trees, when the 'Paradise' stock is used. Here, however, it was found, after some years experience, that the crab stock was so subject to the woolly aphis (*Schizoneura lanigera*) that it was almost impossible to cultivate apples at all; in fact apple culture was nearly at a standstill when the two now so well known blight proof varieties, 'Winter Majetin' and 'Northern Spy' were introduced as stocks. After a certain amount of prejudice was overcome, growers on all hands recognised this discovery as a boon and cultivators adopted it freely. The 'Northern Spy' has proved better adapted as a stock than the 'Winter Majetin' and is now almost exclusively used.

There are several other blight-proof kinds of apples which could doubtless be used as stocks, but there is no need to

increase the number except for special purposes. Among thoughtful cultivators the question suggests itself—is it desirable to keep to one stock only, and propagate by layers, roots, or grafting of roots? I think it is, and to prevent the stock from becoming weaker in the constitution, from constantly working and reworking upon the same variety, I have worked 'Majetin' on 'Spy,' and 'Maggs Seedling' (another blight-proof kind, and robust in constitution upon the 'Spy,' with the best results.

For dwarf-apple culture the 'Spy' can be used, and the 'French Paradise' worked upon the 'Spy,' and the desired kind again worked upon the 'French Paradise.' This, however, becomes tedious. We have now in this State, raised from seed here, a 'Paradise' apple tree of dwarfing habit—free surface rooting properties very easily propagated, and upon which the desired kinds may be worked direct. All kinds appear to thrive admirably upon it, and it is quite blight-proof.

It may be mentioned that even now there are old localities where the old crab stock or seedling apple can be used with safety, viz., well drained, deep sandy soils; but such stocks are now so scarce that it would be difficult to obtain any from nurserymen. The blight-proof stock is now almost exclusively used.

Planters must take great care that their trees are worked sufficiently above the surface of the ground to prevent the scion from striking roots into the ground, and displacing the blight-proof stock, thus rendering the whole tree roots a blighted mass.

Apricot.—This is, perhaps the most difficult to deal with in regard to stocks. Great dissatisfaction has been experienced by growers in consequence of their trees breaking off at the point of union with the stock while in perfect health; and in other cases by the trees having a stunted growth and sickly appearance. This is generally due to unsuitable stocks.

The plum stock now generally used is a variety of the 'Myroblan' called 'La France,' which is easily propagated from cuttings and does not sucker, but such varieties as the 'Montgamet' and 'Large Early' type, when worked upon the above

stocks are very apt to blow off at the union of the tree with the stock when fully grown. I much prefer the common 'Mussel' plum as a stock, as it succeeds well in most soils and climates, and the most popular market sorts do well upon it. The advantage of the plum stock over the seedling apricot is that it will adapt itself to almost any soil, whereas the seedling apricot is only suitable where the soil is light and warm, or well drained the climate warm, and the rainfall not excessive. The seedling apricot is much sought after by planters in the warmer and drier districts of the State, and in many cases it does well. It stands much drought, and will grow when many other trees are at standstill. It is, however, apt to grow too vigorously at the expense of the size and quantity of fruit, whereas the plum stock, which has a more dwarfing tendency, grows finer fruit as a rule. As in most fruits, the theory that if fine fruit is wanted the stock must not be too vigorous holds good with this as with most fruits. It is much better for a scion to somewhat overgrow the stock than the stock to grow faster than the scion, or upper part of the tree. In the one case, well-developed fruit and heavy crops are the result, while, in the other, thin crops and poor fruit are the rule. The nourishment which should go to the fruit expends itself in wood and leaf—the cherry is a striking example of this. Some growers work the apricot upon the almond, a most unsuitable stock. Never plant trees upon this stock. The peach is a most desirable stock in localities where the plum does not do so well as the peach.

Peach.—The peach stock raised from the stone is, doubtless, under almost all circumstances, the best stock for the peach. Some difficulty is often experienced in getting the stones to germinate; some seasons they come up freely and in other very few grow. The stones from one season's crop of fruit will grow freely, while those from another season's crop will nearly all fail. Stones saved from medium sized mid-season's varieties are generally the best for planting. The stones, immediately they are collected, should be placed in the ground in a well sheltered position, and

covered over with sand and allowed to remain there until planting time. When once the stock is above ground it is easily managed; it roots very freely, throws plenty of fibres, and a tap root which is easily managed, and does not require to be removed from the seed bed till the young tree is ready for transplanting to its permanent position. If the stones are planted in too rich soil, then a strong tap root is formed at the expense of fibrous roots; in such cases the tree should be removed when young. If possible, always bud the stocks the same season as they come up.

There are localities where the almond stock is preferred to the peach—not only preferred, but becomes necessary, as the peach refuses to grow and succeed on its own roots.

Plum.—Several kinds of stocks are used for plum trees, viz., the 'Julien' seedling plum stock, cherry plum 'La France' (a variety of 'Myrabolan') and the 'Mussel' plum stock. During a long experience I have found no better stock than the last named, if judiciously selected. The 'La France' stock is now used by nurserymen. It will not stand excessive moisture, or thrive in badly drained grounds, and often in orchards when the trees are fully developed and in bearing, trees will suddenly die completely out in one season, especially such as the 'Yellow Magnum Bonum' and that type of plum.

Sometimes seedlings are recommended, chiefly, it is maintained, because such do not sucker. This is quite a mistake. I tried the experiment several years ago, and found that those trees worked upon seedlings threw up many more suckers than those worked upon the ordinary sucker stock. It has been found that in many localities the 'Cherry' plum has proved a good stock, causing robust growth and being in all respects desirable. All kinds, however, will not succeed upon it. The 'Diamond' plum, and others of similar type, the 'Orlean' and some others succeed well upon it. Experience must decide as to which kinds are best adapted for the 'La France' and 'Cherry' plum in the particular districts in which they are grown. The two varieties mentioned are the only stocks which do not throw suckers, and for this reason are desirable to use when suitable soil and locality to be grown in.

Cherry.—Experience has shown that the stock in general use for the cherry in the Old Country is not adapted for these States. There the seedling 'Mazard' or wild black cherry, is used as a stock for orchard planting and the 'Cerasus Mahaleb' or perfumed cherry, where dwarfing is required. Neither of these stocks is of any use here. Some few years ago there was a great demand for the seedling cherry stock, which, as a stock, is almost identical with the 'Mazard,' especially when raised from black cherries. At the period referred to, it was claimed for this stock that it had a hardy constitution, would attain a large size, and not

throw up suckers like the stock generally in use. But, as predicted at the time, its popularity was short-lived. It was found that the varieties worked up this seedling stock grew splendidly for a few years, and had the appearance of making large well-developed trees; but the vigor soon ceased, and the trees began to die off, and those in more favored spots that did not die bore but scanty crops of fruit of small size and inferior quality.

The 'Mahaleb' cherry of English shrubberies is much used in Britain and on the Continent as a dwarfing stock. Why cultivators should have selected this stock is a matter of surprise, as with us its dwarfing capabilities are not manifest. It rather induces a vigorous growth for awhile, and then the trees die out; this happens when the 'Duke' and 'Kentish' classes of cherries are worked upon it and they are the classes specially recommended for this stock. The old cherry stock in use from the foundation of Victoria and now in general use, is the best stock known here. It is, as all growers know, a small red cherry, ripe just before Christmas; it is a good cooking variety, and pleasant to eat. It is, however not faultless; it throws up abundance of suckers, and 'or this reason is somewhat troublesome; still I believe it is the best stock for cherries. It is not generally known or recognised that the fact of this stock not keeping pace with the kinds worked upon it is its great virtue. It acts upon the scion as the quince upon the pear and the 'Paradise' upon the apple. It is because the scion overgrows the stock that the tree becomes so fertile and its fruits so fine; it fact, it is a dwarfing stock. This stock, as far as my experience goes, is adapted for every variety of the cherry.

Pear.—As with the peach, so with the pear, the stock most generally adapted for the pear is the seedling pear stock, raised from the hardest known kinds, which, as a rule, seed very freely and produce good stock. As is usually the case with most fruits, the kinds do not produce much seed, and stocks raised from such are not generally robust. But where one seed is saved from pears of delicate constitution, hundreds are saved from hardy kinds, so that, generally speaking, hardy stocks are used.

I would advise that pear suckers never be used; if they are they will prove a great disappointment. In the early days, when seedlings were scarce, resort was had to suckers, and, as a matter of course, it was only from trees that suckered abundantly that any quantity was obtained. Trees from these were planted out, and the results were disastrous. Not only were thousands of useless suckers thrown up, but the trees refused to bear, though the same kinds on the seedling pear bore regularly and heavily. The trees on suckers had to be rooted up as entirely worthless. As a rule, and in most localities, the seedling pear stock is the most desirable for pears.

There is also a variety of quince, a kind of small 'Angers' which is used most successfully, and upon which some kinds do well, even when worked directly upon it. As there are but very few sorts of pears that do well when worked upon this quince, it is usually necessary to double work on the stock. First of all, work such sorts as 'Beurré d'Amanalis,' 'Louise Bonne of Jersey,' or 'Beurré Diel,' upon the quince allow them to produce yearling shoots, and then work upon these the desired sort, when perfect health and vigor will be attained. This mode of culture is most interesting and profitable especially in the cooler district of the State, where the pear-o-the-pear takes so long to come into bearing. On this quince stock fertility is attained very quickly; the trees grow comparatively slow, but fine fruit and smart returns are the results. This mode of culture wants to be better known, when it will largely be adopted in the climates referred to.

There are other stocks used for pears, such as the 'Hawthorn' and 'Mountain Ash,' but these are not necessary or desirable where the proper kind of quince is obtainable. It has been affirmed that the pear-on-the-quince is but short-lived this is not the case. In France there are trees of great age, where this system of culture is largely practised with most satisfactory results; likewise in various parts of Victoria, where they have been planted for many years, they will be found bearing heavy crops of good fruit each season.

A Codlin Moth Parasite.

A worm has been discovered which infests the grub or caterpillar of the codlin moth, and which may prove of some service in the battle against that great pest of our apple and pear-trees. Mr. A. F. Furniss, of Mount Lofty, when removing the bandage from an apple-tree in his orchard, found that some of the grubs had died before the cocoon was completed. Mr. Quinn, the Horticultural Expert, placed the dry remains of the grub in distilled water, and found inside it two threadlike worms, which returned to life in the liquid, and one of which measured over 6 in. in length when unwound. Specimens of the worm were sent to Mr. W. W. Froggart, the Government Entomologist of New South Wales, for identification, and Mr. Quinn, who is attending the Australasian Fruitgrowers Conference in Melbourne, has taken further specimens to show to the entomologists at that gathering. There seems no doubt that a parasitic worm is destroying some of the hibernating caterpillars of the codlin moth, but its life history and the amount of aid which it can give towards combating the pest are matters for investigation.

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BEE = CULTURE.

Advice to Beginners.

By Isaac Hopkins, Apiarian, in Bulletin
18 of N.Z. Department of Agriculture.

I. INTRODUCTORY.

The advice given in this paper, though it chiefly concerns beginners who contemplate taking up bee-culture as a business, also applies to those of who simply wish to keep a few hives of bees as a hobby and to work them successfully.

The term 'bee-master' where used in this paper is intended to mean a skilled beekeeper, and 'bee-farmer' to indicate one who derives the whole or a large part of his income from his bees.

Any person may become a beekeeper, but to become a bee-master the aspirant must possess more than an ordinary share of patience and perseverance, and be prepared to give the subject of bee-culture his most careful study. He should be discerning and resourceful, have good judgement, with keen insight to anticipate, and be swift to take advantage of all circumstances likely to lead to success—in short, he should possess just such qualities as would contribute to his prosperity in any line of life. Procrastination is a serious imperfection under all circumstances, and especially so in bee-culture, bee-work cannot be put off without great loss, it must be done when needed, in fact it should be anticipated—a bee-master always keeps a little ahead of his bees.

It must be distinctly understood that successful bee-farming cannot be carried on without a good deal of work and close application, but, as the work to a bee-master is both interesting and congenial, it is never irksome. All bee-masters are enthusiasts in their calling, hence, in a great measure, their success. It may be said of those adapted for beekeeping, that once a beekeeper always a beekeeper, for there is undoubtedly, in spite of the stings, a charm about the work which, when once experienced, never loses its attractions.

Bee-culture is a rapidly progressive industry; new methods and appliances are constantly coming to the front, and things that are new to-day may be obsolete to-morrow; therefore it behoves the bee-keeper to keep himself posted in everything going on in the beekeeping world through the excellent bee literature now at command.

—Who should not keep Bees—

All beginners suffer more or less from the effects of the bee-sting poison, but in most cases the bad effects wear off gradually as the system becomes inoculated against the poison, till, finally, little more inconvenience is felt from a sting than would be caused by the prick of a needle. In rare instances, however, people are to be found who suffer so severely that a sting is positively dangerous to them their system never seems to become immune to the poison; it is scarcely necessary to say that such persons should not keep bees. Again, there are individuals too nervous to go among their bees without being clad in armour, as it were, from head to feet. I have known many such who had kept bees for a long time, and yet had never been able to get over their nervousness. In my opinion such people should not keep bees. No person who manages his bees properly can escape being stung occasionally, though I am sometimes told about individuals (I never come in personal contact with them) who can do anything with bees without being protected in any way, and never get stung. I have to listen, but never contradict a person who tells me this—it sets me thinking, though.

—Beekeeping for Ladies—

Bee culture offers a splendid opportunity for our settlers' daughters and other ladies who would like an outdoor, healthy, and profitable occupation. I may state that I take a special interest in this matter, and hope to be the means of inducing many of our young women to take up beekeeping as a business. Ladies who take to it make excellent apiarists—much better than the average man. In America they rank among the most successful beekeepers, and peasants' wives on the Continent of Europe usually look after the household bees, from which they

derive a considerable proportion of the family income. There is nothing to prevent a fairly healthy young woman from managing and doing the work, with a little assistance during the height of the season, of an apiary of 100 hives. My lady assistant at the Ruakura State Apiary is now capable of doing so. Her position should be a good object lesson, and an encouragement to other young ladies to go and do likewise.

(To be continued)

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THE FARM.

Diseases of the Skin.

(Continued from last Issue.)

S. S. CAMERON, M.R.C.V.S., Chief Veterinary Officer, Melbourne, in the Victorian "Journal of Agriculture."

NON-PARASTIC SKIN DISEASES.

—Mud Fever.—

This is really an eczema of the skin of the legs, flanks and abdomen of horses, arising from the irritation of mud and dirt or the application of cold water when the skin is in a heated or blood-flushed condition. The skin becomes harsh and dry and scurfy and pimples may form and be succeeded by scabs. The affection is seldom seen in horses whose legs are not clipped or washed.

Treatment.—A laxative drench should be given and emollient dressings (oil and soda linament) applied.

—Mallenders and Sallenders —

These are terms applied to an eczematous condition of the flexion surfaces of the knee and hock (the back of the knee and the front of the hock). They are often caused by want of care in the application of blisters in the region. In all cases of counter-irritants being applied to the limbs the skin of the bends or flexures of joints should be protected by smearing with vaseline or other greasy substance. On becoming established

eczemas in these situations assume a special character and are more difficult to cure. The thickened skin on account of the movement to which the part is continually subject is formed into folds between which crevices or cracks occur. The edges of these cracks become inflamed and covered with dry scabs. The hair stands erect and often falls out. If not quickly healed the condition becomes chronic and a scaly exudate is continually formed or the trouble may develop into a localised 'grease.'

Treatment.—This will vary with the stage of the disease but as a rule the treatment recommended for 'cracked heels' and for 'grease' is successful.

—Cracked Heels in Horses.—

By cracked heels is understood an irritable and inflamed condition of the skin of the horse's heels. It is associated with heat, tenderness, and cracks or crevices more or less severe, from which a serous fluid oozes, and dries as a scab or scurf on the borders of the cracks. This scurf if allowed to accumulate acts as a continual source of irritation, and prevents the crack from healing.

Causes.—Coarse-haired and beefy-heeled horses have a constitutional tendency to this and allied affections, and their heels are always somewhat of a trouble to their owners. Another predisposing cause may be found in errors of diet—the use of mouldy or musty hay. Hard-feeding, too, without exercise, will cause a congestion of the skin of the heels which only needs the exciting cause of a little dirt, urine, or other irritating agent, to develop into cracked heels. Sometimes cracked heels are caused by the chafing of a tether rope or the ropes used in casting for operations. By far the most common cause, however, is the practice so much in favor with grooms of washing horses' legs. It is not so much the washing either, as the neglect to

thoroughly dry the legs afterwards. Except a good reaction is caused by drying with sponge and towel and hand-rubbing or bandaging, the skin of the heels, especially the hind ones, being so far removed from the circulation, becomes cold and chilled, and slightly swollen and tender. On exercise the swollen skin bursts, as it were, and the cracks thus formed at the parts where the skin is most flexed; viz., in the niches at the back of the pastern. Another evil attendant upon washing is the use of soft soap, the lather of which, in addition to being difficult to wash off, is extremely irritating. Soft soap is made from potash, which is infinitely more caustic than soda, the basis of hard soap, so that hard soap only should be used. Equally essential is it that the heels should be rubbed thoroughly dry. On account of the great prevalence of cracked heels in white-legged horses, it has been contended that white skin is weaker and more easily inflamed than colored (pigmented) skin. It is more reasonable to assume, however, that this prevalence of cracked heels on white legs is the result of neglect after washing. For the sake of cleanliness and appearance white legs are washed more often. They are thus more frequently exposed to the most common exciting cause.

Treatment.—The object to be aimed at is the abatement of the irritation, and for this purpose the scab or exudate which forms round the cracks should be removed with the fingers as often as it forms. An emollient or softening and healing ointment should be applied both before and after the day's work. Lead linament (Goulard's extract one part, olive oil eight parts) is a good application. Ordinary zinc ointment will relieve the irritable condition of the skin, and promote healing of the cracks. Zinc ointment with iodoform (one part to eight) is even better and more likely to effect a cure than most

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other agents, provided its use is combined with the recommendations before stated for prevention. When the cracked surface as raw or when the weeping is excessive some dry wound dressing should be applied and it is a good plan to alternate zinc oxide powder with an emollient ointment according as the cracks are moist or scabby. Stocking of the legs by hard feeding and want of exercise should be avoided.

(To be Continued.)

The World's Biggest Farm.

The world's biggest farm is said to be owned by Don Luis Terrazas, in the state of Chihuahua, Mexico. It measures from north to south 150 miles, and from east to west 200, or a round 8,000,000 acres in all.

On the great prairies and mountains of this Mexican farm there are 1,000,000 head of cattle, 700,000 sheep, and 100,000 horses. It is reported that the 'farm-house' is probably the most magnificent in the world, for it cost £320,000 to build and is more richly furnished than many a royal palace.

Interesting Wheat-Growing Experiment.

An experiment in wheat-growing, of great originality and much promise, is being made in Russia. The experiment (says 'Australian Field') consists solely in the manner of cultivation. The author of the new method is General Levitsky, who began last August in a little model farm adjoining his barracks. He sows single grains of wheat at the bottom of conical pits 1 ft. to 1½ ft. deep. As the grain thus sown in the apex of the pits begins to appear above the surface it is earthed over, and each time the leaf

appears more earth is filled in till after, say, five or six earthings, the pit is full and level with the surface. The result of this treatment is that the plant, which has a 'branching knot' at the base of the original stem, and of each new stem sends out a number of new shoots at each starting. It is asserted in a letter to 'The Novoe Vremya' that one grain treated in this way sent up 19,683 shoots. The straw seems to be unusually stout, the yield enormous, and General Levitsky believes that the plant will be perennial.

Clipping Horses.

All clipped horses, says a writer in the 'Farmer and Stock-breeder,' should be liberally fed on rich foods that handsomely maintain the caloric—keep up the heat of the system. To clip an ill-fed horse, already very chilly for want of corn is an absolute cruelty that should not only be severely tabooed in all horse society, but should subject the owner to legal proceedings. In our very slowly advancing civilisation the sympathies of mankind stretch out beyond the narrow confines of humanity, and the man who is cruel to animals is nowhere tolerated. If he cannot feed liberally he cannot expect exertion, and he should then leave all the coat on the horse.

When well fed horses are clipped it is a good plan to leave hair on the extremities where the circulation may be sluggish, and also on parts of the body which are much worn by harness. In good, well-managed stables hunters keep the coat under the saddle and on the legs, and to this should be added a large part underneath, where the girths may wear away first the short clipped hair and then the skin, and also between the fore legs and between the thighs. What object there can be in crawling under a horse to take away the very fine and fluffy growth

which is the only protection of the delicate inside of his thighs I never could understand. It does not improve his appearance, as that part is not exposed to ordinary view. It forms no part of the tout ensemble, and the thin hair does not materially increase the perspiration, therefore there is no object in taking it off.

Influence of Fertilizers upon Wheat.

A study of the influence of fertilisers upon the weight per bushel of wheat and the character of the kernels is reported. It was observed that nitrogen used alone retarded maturity, while minerals used alone hastened it. Where a large increase in yield was secured through the use of fertilizers, the kernels were generally larger, better filled, and better coloured than those grown under less favorable fertiliser conditions. In eight trials the phosphate fertilizer increased the weight of the grain per bushel, and in two the weight was the same as when no fertilizer was used. In five trials potash increased the weight per bushel, and in no case was it decreased by the use of this element. Nitrogen increased the weight in some cases and decreased it in others. Forty-one samples of flour from wheat grown upon fertilised and unfertilised plots at nine different places were examined. From three of nine places the wheat grown on plots fertilized with phosphates produced flour that made the best bread, from two places the wheat fertilized with nitrogen, from two the wheat fertilized with potash, and from two the wheat receiving a complete fertilizer. In thirty tests the fertilizers which gave the largest yields produced wheat of the highest bread-making value, while in ten the best quality of flour was secured from the fertilized wheats not showing the largest

O Y T E A
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yield per acre. While yield and bread-making quality were both improved by the use of fertilizers, they were not improved to the same extent by the same fertilizer. No constant relationship between the percentage of protein in the grain and flour and the bread-making value was apparent, and while it is considered possible to increase the amount of proteids in flour by the use of nitrogenous fertilizers it is stated that the bread-making value is not proportionately increased. The increase in nitrogen content in some instances imparts a negative value, as a part of the nitrogen is in non-proteid forms. The results, as a whole, are taken as showing that not only the yield of wheat, but also the bread-making value, can be enhanced by increasing the soil fertility, and that a very close relationship exists between the amount of available plant-food in the soil and the quality and bread-making value of the wheat produced on it.—H. Snyder (Minnesota Station Bulletin 102).

Miscellaneous Items.

In a bushel of wheat there are about 550,000 seeds.

Raise and feed all the roots you can, but do not expect to fatten cattle without grain.

In fattening animals, the quicker they can be fattened the greater will be the profit.

Desirable qualities in a herd are fixed by a long line of careful selections and breeding.

Mature pigs that are thin may be made to gain half a pound a day on lucerne without grain.

A sire that is kept idle in the stable half the year is more liable to beget weak foals than the mare is to throw them.

Lucerne performs an important part in the pig industry, and should be grown on all farms where this can be done successfully.

The brood mare should have a few hours' exercise in the yard or on the road every day. It does not pay to keep her confined.

In starting with sheep no one should get the idea that he is taking up a line of live stock raising that is going to manage itself.

Horses which are judiciously fed and well groomed will stand double the amount of hard work they would under careless treatment.

Cattle have 32 teeth, which are divided into 24 grinders and eight nippers on front and lower jaw. They have no front teeth on front upper jaw.

Sheep are more likely to give trouble going under fences than over, and especially if the fencing is of wire and stretched over rolling land.

A driving horse ordinarily cannot travel more than 50,000 miles during his lifetime, even though he does not go lame, says an American motorist.

The best land on the farm is none too good for lucerne. One seeding on soil adapted to it will yield three or four good crops of hay each year for from five to ten years.

It takes three years to get a horse's mane to lie properly after it has been hogged, if indeed it ever does so. The horse dealer can, however, usually lie without special difficulty.

Pigs suffering from scours may be helped and many times cured by feeding them on milk that has been boiled, and to which a pint of scorched flour has been added for each gallon.

The merino sheep was introduced into England from Spain in 1787. For centuries the Spaniards guarded the breed so carefully that they would only permit the wool to be exported.

"Public prosperity (says a Chinese philosopher) is like a tree. Agriculture is its root, industry and commerce are its branches and leaves. If its roots suffer the leaves fall, the branches break, and the tree dies."

Don't fail to provide good shade for the pigs during the hot weather. No animal suffers from the heat worse than the pig, and, owing to his inability to perspire, craves for a pool of cool water to reduce his temperature.

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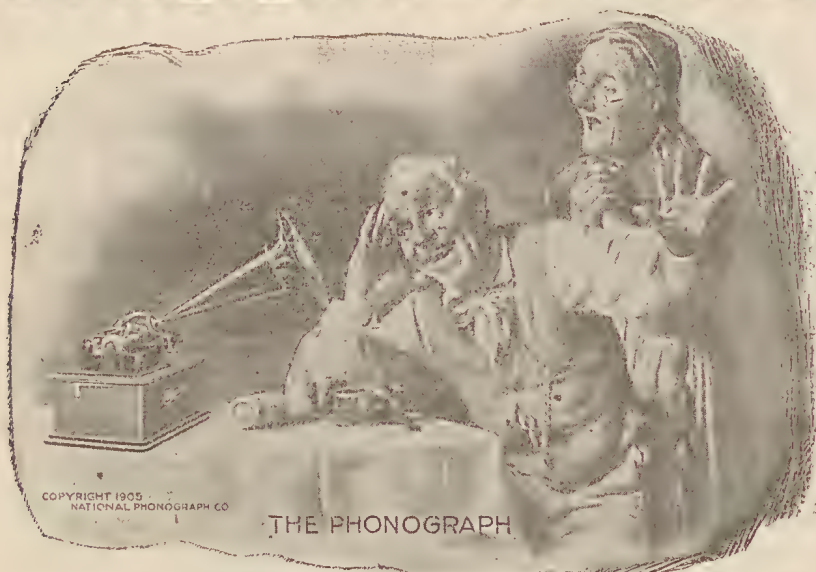
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The Cape Tulip.

ITS POISONOUS PROPERTIES.

Some interesting experiments have been made recently by Mr. J. F. McEachran, the Veterinary-Inspector of Cattle; into the alleged poisonous qualities of the Cape tulip, says the 'Journal of Agriculture of S.A.'

The first two experiments were with calves, in whose food the weed was mixed, but they refused to eat it, and pushed it aside. In experiment No. 3 an aged cow in poor condition, was on July 4 fed on a ration of 10 lb. of chaff, 4 lb. of bran, and 4 lb. of chaffed Cape tulip. Next day she was dejected and listless, and received a further ration of 5 lb. of chaff, 2 lb. bran, and 4 lb. chaffed Cape tulip. On July 7 she died with symptoms of paralysis. A post-mortem examination showed pieces of the weed in the rumen and the second stomach, and besides indications of acute poisoning were discovered in the fourth stomach and also in the intestines. Experiment No. 4 was conducted on a six-year-old dry cow, which from August 5 to 11 was fed on chaff, bran, and chaffed Cape tulip. Symptoms of diarrhoea and general uneasiness appeared on the 6th, but as no other symptoms were observed, and the cow ate the weed in large quantities, the experiment was abandoned.

On September 8 Mr McEachran inspected eight cows belonging to Mr. McLean, of Goodwood. They had escaped from their paddock, eaten Cape tulip at Keswick and Richmond, and two of them showed weakness, staggering, and trembling of the skeletal muscles. In the other cases there was a glairy discharge from the mouth and nostrils, or else diarrhoea, with dark, blood-stained faeces. All the animals recovered.

Mr. McEachran concludes, as the result of his experiments, that Cape tulip is poisonous to dairy cattle, and he suggests that the toxic properties only exist at a certain age of the plant's growth. He confirms an observation which has been previously made, that animals running on land infested with Cape tulip carefully avoid it. This accounts for the fact that no deaths from this cause have been reported among cattle or horses grazing on the Park lands, although the weed has existed there for the last nine years. It is strange cattle, which do not know the weed, and which perhaps arrive hungry, that fall victims to it.

There are two species of Cape tulip in South Australia, both imported from South Africa

Homeria miniata (the two leaved Cape tulip) is found growing on the East and North Park Lands, being very numerous opposite Prince Alfred College. It is also found in many places of the Adelaide plains, and has also been heard of in other parts of the State. Specimens obtained from the Park Lands and from Keswick show that this was the species with which Mr. McEachran made his experiments. The flowers are salmon-pink, with a yellow base blotched with green, and they are smaller and do not open so fully as those of the next species. *H. miniata* may be distinguished at any time of the year by having two long, tough, grass-like leaves rising from the base of the stem, while *H. collina* has only one; also, by the numerous bulbils usually growing in the axils of the leaves and at the base of the corm or main bulb.

Homeria collina (the one-leaved Cape tulip) is a taller, handsomer, and more erect plant, sometimes grown in gardens for the sake of its large spreading flowers, the segments of which are red or pink, with a greenish base. Its single leaf is very long and tough. Behind the flower are visible two of the long pods or capsules rising from the same spathe as the flower. A yellow-flowered variety of *H. miniata* does not appear to fruit, at least in our climate, but trusts to its numberless bulbils for propagation.

Mr. P. MacOwan, late Government Botanist at the Cape, writes:—'*Homeria collina* is well known as poisonous to

stock, especially to those from other districts where it is not known. I have found that these plants are generally killed by hand-pulling in the spring, i.e., that the bulb mostly dies if the culm is dragged out of its sheath.'

The Adelaide City Council proposes, with the assistance of the Department of Agriculture, to carry out some experiments in order to find out whether the Cape tulip growing in the Park Lands can be eradicated.

Testing Dairy Cows.

An important feature of the work of the dairy section of the Agricultural Experiment Station of Wisconsin is the testing of dairy cows for farmers. During the year 1907 345 cows were tested by the Station officials. They were chiefly Holstein, and some exceptional records were made. Colantha 4th Johanna, an eight-year-old Holstein cow, produced, in a seven day test, 28·176 lb. of butter fat, in a thirty-day test, 110·833 lb., and during the whole year her production reached 2,743 gallons of milk, containing 998·256 lb. of butterfat. The next best return was 626·145 lb. of butterfat. As showing the value of these tests, it is mentioned that the range in production of butterfat in the year was from 262·86 lb. to 998·26., while the average was 453·428 lb., equal to nearly 530 lb. of commercial butter. Of Guernsey cows, 99 were tested for varying periods; of 27 in the annual tests, the range was from 276·50 lb. to 638·49 lb. Two young cows, Yeksarose and Lily of Helendale, produced equal to 745 lb. and 700 lb. of commercial butter during the year.—The Journal of Agriculture of S.A.

Flies in the Dairy.

The 'Journal d'Agriculture Pratique' says, it has been found that flies have a great objection to the colour blue, and if tenements infested with flies are washed with a blue instead of a white wash, flies will desert the place. In support of this an instance is reported by that journal: 'A farmer had 170 cows housed in different

sheds; they were pestered with flies, but he observed that in one shed, the walls of which were a blue tint, the cows were not worried. He therefore added a blue colour to the lime with which he washed the walls of his buildings, and from that time the flies have deserted his buildings. The following formula is used by him for the wash:—To 20 gallons of water add 10 lb. of slaked lime and 1 lb. of ultra-marine. The washing is done twice during the summer. Any remedy especially such a simple one, is well worth trying in districts where the flies in summer, in this State, are such a serious pest.

Preservation of Milk.

There is no subject of greater importance to the whole community than the problem of how to provide a pure milk supply. Milk is an absolute necessity, and an extremely valuable food when pure, but when impure is a source of danger to all who consume it. The loss of infant life owing to the children being fed on impure milk is appalling. This has been recognised for a very long time, and efforts have been made to reduce the mortality by the use of sterilised milk. These, however, have been far from satisfactory, many doctors asserting that sterilised milk produces rickets and other troubles. The use of preservatives, such as boric acid, is attended with a considerable amount of danger, and in many countries they are absolutely prohibited. I learn from American exchanges that the probability of the problem of supplying cities with pure milk is in a fair way of being solved by the discovery by the New York experiment station of the value of carbon dioxide under pressure as a preserver of milk. This gas is perfectly harmless to the human stomach, but it is said to be a complete preserver of milk for a period of about five months when added to it under a great pressure. At the station mentioned a pressure up to 175 lb. to the square inch was used. The milk was then said to be carbonated. Discussing the subject, the 'Michigan Farmer' says:—'Carbonic acid gas is deadly if it fills the lungs, because it takes

the place of oxygen that the lungs would have. Water would do the same thing. Carbonic acid is not injurious in the stomach because the stomach does not have to have oxygen. It is probable that the carbon gas added to the milk under great pressure keeps the ferments in the milk from receiving some element they must have for development and causes their destruction by depriving them of this. It ought to have the same effect on the disease germs, though this phase of the matter has not yet been worked out. We have been drinking soda-water for a long time, and no one has ever thought it injurious. We will probably soon be drinking carbonated milk. The possibilities of this discovery being revolutionary are very good. There are some details of cost of application of the gas and the manufacture of receptacles that will stand the pressure, but that is a problem that concerns mechanics only.'

News and Notes.

Overloading of the churn retards the coming of the butter, and adds to the labor.

Good, rich cream, with a large percentage of butter-fat, will keep sweet the longest.

The more uniform and comfortable the dairy cow's surroundings, the more uniform will be her yield.

The poorest investment on the face of the earth is buying a poor cow for general purposes or dairy. She will run you in debt.

Very few club-headed, thick-necked, steer-horned cows are any good. Even with the cow the tail tells a tale; the heavy club tail seldom follows a good cow, while, on the other hand, a slim tail is one of the characteristics of a good one.

The first week the calf may get six to eight pounds of its mother's milk, but rich milk should be diluted with a little water. Always feed at a temperature of about 90 to 100 degrees. A variation will cause scours. Never make the mistake of overfeeding. This is a very easy thing to do, and is the cause of many calves' deaths.

Kind usage pays a large dividend in handling milk cows as well as other stock. The cruel or quick tempered man ought not to be on a stock farm.

A party of travellers were looking at the Niagara Falls, and one of them was heard repeating in melancholy tones, 'What a waste! What a waste!' 'I perceive, sir,' said another visitor, turning to him, 'from your depression at this waste of water, that you are an electrical engineer' 'No, I am not,' was the response; 'I am a milkman.'

The Melbourne Tailoring Depot, No. 10 ARCADE, Adelaide.

Absolutely the best in the States. Customers have a choice of over 2,000 patterns.

New Goods now open for Spring and Summer wear.

First-class fit and workmanship guaranteed.

NOTE THE ADDRESS, and profit by ordering your next suit from us. We post free to country customers patterns and self-measurement forms.

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Hairdressing Saloon,
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GEO. K. A. GOSLIN Manager
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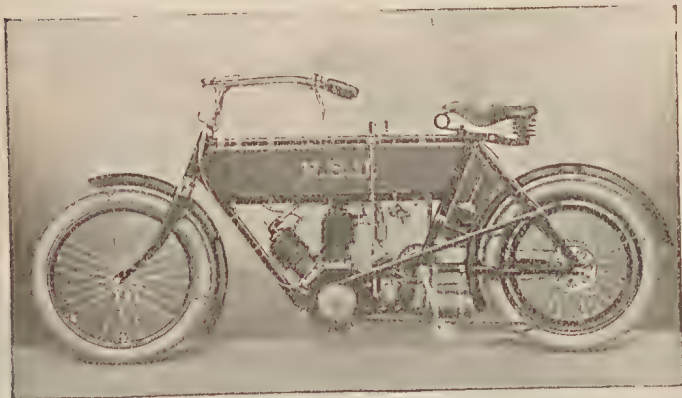
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ONLY £10 10s,

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MOTOR CYCLE

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This Contest is the Only Motor Cycle Engine Test that has been held in South Australia this year. We can prove this

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General Furnishers and Ironmongers.

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FRANKLIN STREET, near Post Office, ADELAIDE.

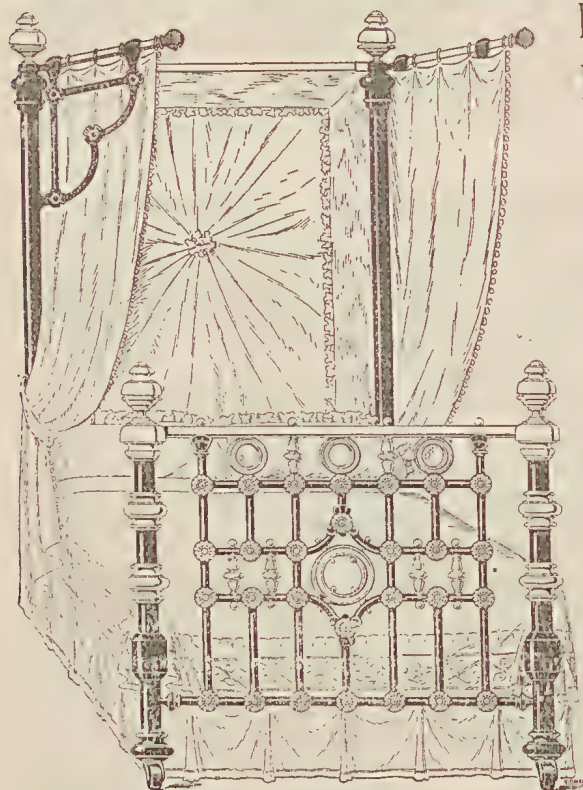


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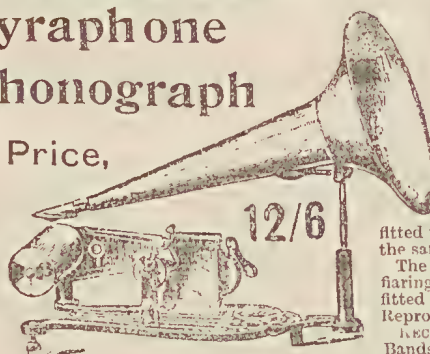
- 1 Sideboard, with 3 bevelled mirrors
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Postage extra, 2s., securely packed

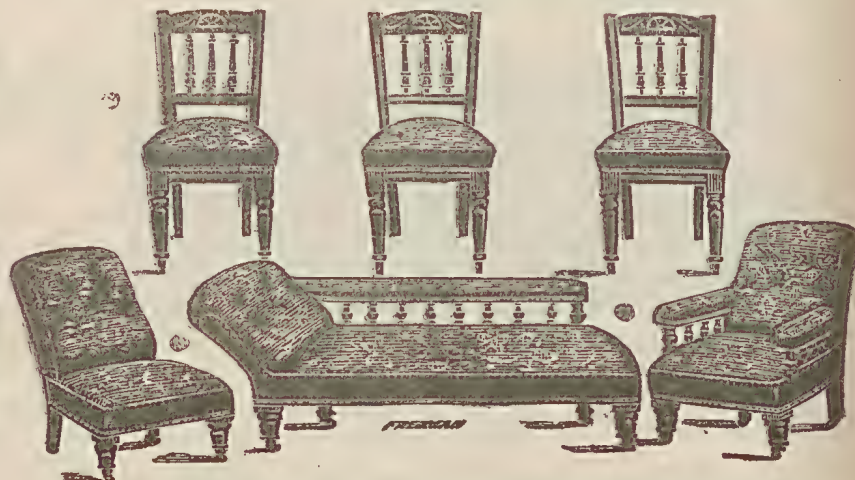
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The Silent Motor is simple, yet strong, the spring itself being of finest quality tempered steel. The governor, with latest pattern regulator, has complete control of the speed, ensuring a reproduction PERFECTLY IN TIME.

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6-piece DRAWING ROOM SUITE, as shown, beautifully upholstered, £4 15s. and £5 15s.



THE VARIOUS POINTS.

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| 1. Comb (single) | 7. Back | 13. Wing Bow | 18. Thighs |
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❖ The Poultry Yard. ❖

Diseases of Fowls.

(Continued from last Issue.)

G. BRAGSHAW, in the 'Agricultural Gazette of N.S.W.'

—Diphtheria.—

Diphtheria is a highly contagious disease, and is feared by every poultry-man, being most contagious, and in many cases proving fatal. The symptoms are a discharge of an ill-smelling sticky liquid from the eyes, nostrils, and the corners of the mouth. In a day or two there is a growth in the mouth and throat of white cheesy-like matter. This deposit some times increasing in a day to the extent of closing up the larynx passage, the fowl dying from want of breath.

The treatment of fowls affected with this disease is anything but pleasant, and as cured ones are most liable to again contract the disease, the majority of poultrymen kill the affected ones on the discovery of the disease, and burn the carcasses.

At times valuable show birds take the disease, such specimens being, perhaps, worth attempts at curing.

The procedure is to scrape off the growths with a small piece of pointed stick, then swab out the mouth with warm water, using a small piece of sponge tied on the end of a stick. The throat should be thoroughly dried, and, using a camel's hair brush, paint the sores with the following, obtainable at the chemist's:—Nitrate of silver, 20 grains; water, 1 drachm. This will usually prevent any further growth, the next thing being to look after the bird's health. The affected

ones must be separated from the others, and placed in a clean, dry pen. The houses from which the diseased specimens came should be lime whitened, to which carbolic has been added. All drinking vessels and food troughs should be scalded in boiling water and a strong solution of washing soda before being used by the healthy fowls. The runs should be dressed with lime, and allowed a good rest. Those who have cases of diphtheria or diphtheritic roup, will find doctoring both unpleasant, disappointing, and unprofitable, from the small percentage that can be positively cured.

In connection with diphtheritic fowls, it was long an open question whether such was communicable to man, and about a dozen years ago, it was thought that the question was settled in the negative. However, of late years, the number of poultrymen in America affected with sore throats has prompted further investigations by the bacteriologists of that country, several of them now being assured that the disease is communicable. The eminent Dr. V. Moore mentions particulars of over fifty deaths having taken place in both hemispheres, attributed by various pathologists to diphtheria, communicated by the presence of diphtheritic fowls. With this question so conclusively set at rest, poultrymen should hesitate before attempting cures on diphtheritic fowls, but rather should, on discovery of the disease, kill those affected, and destroy the carcass by fire.

(To be continued)

Interesting Statistics.

An ingenious statistician has drawn up a table to show how many eggs the various kinds of domestic fowls lay per annum, and how many of the eggs go to the pound:—

- Geese, 5 to the lb.; 30 per annum
- Polish 9 to the lb.; 150 per annum
- Bantams, 16 to the lb.; 100 per annum
- Hamburgs, 9 to the lb.; 200 per annum
- Turkeys, 5 to the lb.; 30 to 60 per annum
- Game Fowl, 9 to the lb.; 160 per annum
- Leghorns, 9 to the lb.; 200 per annum
- Plymouth Rocks, 8 to the lb.; 150 per annum
- Langshans, 8 to the lb.; 150 per annum
- Brahmas, 7 to the lb.; 130 per annum
- Ducks, 5 to the lb.; 30 to 60 per annum

Preparing Fowls for Show.

There are two chief points in preparing a bird for the show-room—First, quietness; and second, cleanliness. Good advice in this respect, is that given by R. H. Crosby, in the 'American Poultry Journal.' He says, in respect of the above two qualities:—

By quietness is meant birds that are easily handled, and will not be scared nearly to death when in a coop. The fancier can train his birds for the show just as a horse is trained for a race. Starting, say, a month before the show, the birds that are to be exhibited should be handled as much as possible, so as to get them good and tame. If the show specimens are placed in a coop at night, and fed in the morning before letting them out, they will soon become used to the coop. While shut up, they should be taken out of the coop and handled, just as a judge would handle them at a show. A short cane should be kept handy, and the bird taught to pose when touched with it. If this treatment is kept up your birds will show up far better than your neighbours' birds that have not had such good preparation.

While your birds are showing themselves off to the best advantage, your friends' untrained birds are huddled up in the far end of coop, and are afraid to stand up for inspection. Thus it will be seen that much is to be gained by training your birds for the show, for even if your birds are not quite as good as the other fellow's your specimens will show up far better than the other party's scared-to-death birds. Anyone who has ever visited a show knows that the above is perfectly true, and while some birds were looking their best, some others would be found huddled up in the back end of the coop.

In the second place, your birds must be clean from beak to toe, and most birds are the better for a good washing. Of course, if your birds are not white, and the plumage looks good and clean, then it is not advisable to wash them unless you understand the job from start to

finish, for the writer remembers the mess he made of the first birds he attempted to wash. But most all white birds are better for a thorough washing. To successfully wash a bird, you will want three tubs. In tub No. 1 place clear warm water; in the second, warm water with a quantity of soap dissolved in it and made into suds, and tub No. 3, containing warm water with a little bluing added. An assistant is necessary, for one person cannot manage alone very well. Now bring in your birds (you should borrow the kitchen for the job), and provide a light coop for them. Catch a bird, and while your assistant holds it in the water of tub No. 1, you should thoroughly wet all feathers. Be sure and have all the plumage well soaked. Now, squeeze out as much water as you can, and then place in tub No. 2. And now the real work commences. Take a bunch of feathers in one hand, and thoroughly wash them with the other. Don't be afraid of hurting the feathers, for a wet feather will stand a lot of rubbing. A tooth-brush should be used to clean the legs and feet, being sure to get all the dirt out of the cracks and corners. The water should be pressed out of the feathers as much as possible, and the bird is put in No. 1 tub again, and all the soapy water rinsed out of the plumage. Now place your bird in the third tub, and be sure and get the blue water thoroughly into the feathers. Press out as nearly dry as possible, and give the bird a toss up in the air to get the feathers loosened up, and then place in the coop to dry. Be sure you get the head and feet perfectly clean. Before sending or taking your birds to the show, rub up their legs with a soft cloth to which a little vaseline has been applied. The comb and the wattles should be treated in the same manner. If you don't wash the plumage, be sure and clean head and feet, for a bird with dirty legs and feet is not a nice specimen for a judge to handle, and he will give preference to the clean bird every time. In conclusion I wish to say that I trust these few lines will be of some use to a new hand at the game.

Cold Storage of Eggs.

The following advice and hints were given by Mr. A. D. Cairns, manager of the Western Australian Government refrigerating works, in a paper read by him at a agricultural conference held at Perth. Speaking of the cold storage of eggs, Mr Cairns said:—"To the poultry man we would say, send in your eggs clean and fresh, and see that they are not laid in the sun. Also see that the hen is not a scavenger and that she does not drink sewage. A duck or hen has no internal economy to turn soap into savoury omelet, and damp, wet straw for nesting has a very enduring flavour. It is possible that a lime-washed box is a help to the cold-storage man. Last year chilled eggs were auctioned when eight months old for 2/ per dozen. The egg buyer is naturally a gentleman who has doubts. We must respect these doubts. If you sell chilled eggs as new laid, it is a matter for your own conscience; 'falsification' is what the Commerce Act would call it. The man who has them for breakfast may think this, but inadequately expresses his feelings. Adelaide eggs often keep better than local eggs. Whether it is the feed, breed, water, or sea voyage we hope to form some definite idea of before next conference, but the stored flavour of the egg, inseparable from the business, is no drawback to healthy stomachs. Cold-stored eggs are not for invalids or persons with debilitated livers."

Poultry Brevities.

Be enterprising.

Don't be full of fads and fancies.

It is backbone you want, not wishbone.

Get rid of all the surplus old stock at once.

Too heavy feeding of green bone or fresh meat will cause worms.

Poultry for profit must be studied from a practical standpoint, just as any other stock on the farm. A hen is not a large creature, but the poultry industry is large.

Do Poultry Pay?

Yes, if you REGULARLY use

"KONDO" Poultry Food.

POULTRY FOR PROFIT is a very interesting subject, and one that is not yet definitely settled in this country. However, there is one thing certain, if Hens can be made to lay a large number of eggs, and they do not die from sickness, Poultry-keeping would pay, and pay very handsomely. "KONDO" Poultry Food will assist the former, and by keeping the birds healthy greatly reduces the latter

To be had from Storekeepers, or from

R. G. LILLYWHITE. Sole Agent,
Phone 2250. 10 Alma Chambers.

Up to-date Tailors



We have a large stock of Woollens to choose from.

Fit and workmanship guaranteed.

Also, a large stock of Gents' Mercery to choose from, which can be purchased at 20 per cent. less than elsewhere.

Self-measurement forms supplied on application.

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15 CENTRAL MARKET.

There is Nothing like Leather.

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BOOT, GO TO THE

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Boots with the best of material.

Fit and Style Guaranteed. A trial
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The Cheapest House in town for the
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Quality is Value;



Frankel's ^{PRICE} 1/- ^{PRICE} 1/-
Freckle-Soap

IS **PERFECTION!**

A. MEDICINAL SKIN FOOD.

For the BATH. For the TOILET.

SWEET : CREAMY : SUAVE.

A VERITABLE BALM FOR
THE SKIN.

Ensures

A LOVELY COMPLEXION

Imparts

A VELVETY SOFTNESS

and can be used on the
Skin of

A NEW-BORN BABE.

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with Themodist,

THE PIANO OF THE FUTURE.

The Piano that Everyone can Play.

Playable by Piano or Pianola Music Roll.

We will take your existing PIANO as part payment.

The time has passed to speculate upon the future of the Pianola Piano. It is here to-day as the most successful innovation in musical instruments.

You may have your choice of four old-established Pianos of high reputation.

THE WEBER
THE STECK

WHEELLOCK
STUYVESAN

As a straight Piano or Pianola Piano.

Padrewski's choice of Pianos is the Weber.

Richard Wagner's choice was the Steck.

Manufactured and sold only by the

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38 King William Street, next Rundle Street Corner.

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If you purchase a Property from **JACKMAN & TRELOAR**, the Realty Specialists.

There is no satisfaction in paying rent to the Landlord every Monday Morning when by consulting us you can be placed in the happy position of being a **HOME-MAKER**.

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RESIDENCES.

East Adelaide.—New Modern Returned Verandah, 6 rooms (20 x 14, 16 x 13, 15 x 14, etc.) bath, pantry, linen closet, gas, washtrough, 60 x 200. £780.

North Norwood.—Double front, 4 rooms, verandah, 71 x 140. £315.

Prospect.—D.F., 6 rooms, bath, 50 x 135. £425.

Malvern.—D.F., 5 rooms, bath, pantry, cellar, 50 x 150. £575.

BUILDING BLOCKS AND ACRES.

East Adelaide.—£2 5s per foot, First Avenue, 60 x 190.

North Norwood.—80 x 145, £1 per foot.

Parkside South.—50 x 140, 1bs per foot.

Wayville West.—60 x 150, £2 2s per foot.

FARMS AND GARDENS.

Modbury.—48 acres cleared and ready planting, ideal orchard land, well, and tank, £6 10s per acre.

Golden Grove.—65 acres, house, 20 acres orchard, £800.

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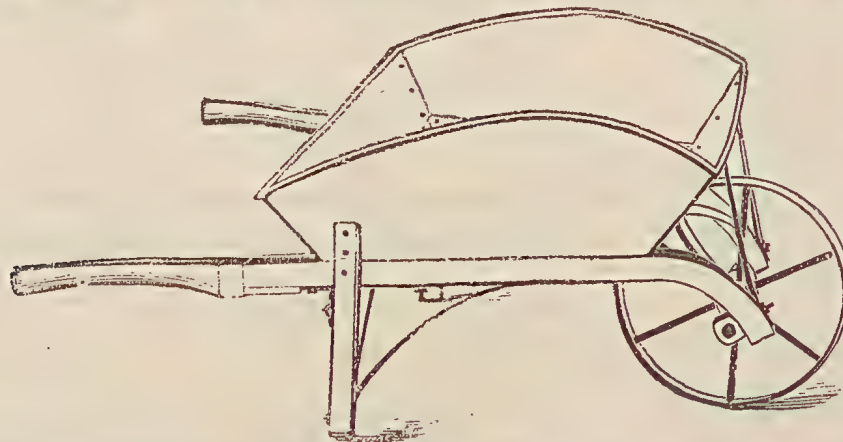
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Made in Black or Galvanized Iron. Sizes—No. 0, 1½ bushels; No. 1, 1½ bushels; No. 2, 2½ bushels.

MANUFACTURERS—

A. SIMPSON & SON,

Makers of Field Gates, Water Barrows, Watering Cans, and all kinds of Metallic Goods for Garden Use.

Answers to Correspondents.

'Amateur.'—Pigs should be castrated at two to four weeks of age. Care should be taken to avoid cold, damp weather.

'Chick.'—Scurvy legs is caused by parasite being under the scales of the legs. Wash with soap suds and then rub on sulphur.

'M.S., Tanunda.'—The best feed that will increase the flow of milk in any form is one that contains a large proportion of protein, such as bran. Green food such as maize, sorghum, or millet is also good.

'Constant Reader, Port Pirie.'—Your hollyhocks are evidently affected with a fungus trouble known as rust. Gather the foliage which is badly affected and burn it. Then spray with Bordeaux mixture.

'Pansy.'—We will devote an article with illustrations to your namesakes next month, and therein all the information you desire will be found. The best months for sowing Pansy seed is February and March.

'A.B. Caltowie.'—A list of the different points of a fowl has been previously given in this journal, but in accordance with your request we republish same (with illustration) in our poultry columns of this issue.

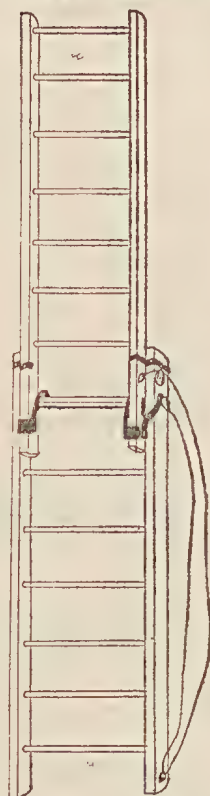
'La France.'—There is no better remedy for mildew on roses than dusting the foliage with flour of sulphur; use a bellows as a distributor and repeat the operation as often as necessary until the mildew is entirely eradicated.

'R.S.L., Inglewood.'—Your horse is probably suffering from some defect of the back teeth or molars. Obtain the services of a practical man to examine the horse's teeth, and apply the necessary treatment, which consists of rasping the sharp edges off them, and then feed the animal on soft food for a day or two.

'Poultry-man.'—In the morning give the fowls pollard (2 parts) and bran (1 part.) with plenty of lucerne chaff, and 3 ozs. of animal food (boiled rabbit, liver, beef scraps &c.), in all about 2½ ozs. per bird. In the evening give about 1½ oz. of wheat per bird, changing occasionally to equal parts of short oats and bread.

'Tom Arter.'—A rich sandy loam, well drained and deeply ploughed, is the best for Tomato culture. Tomatoes will not stand heavy manuring after the fruit has set, because either farmyard manure or other stimulating fertilisers delay the development and ripening of the fruit. A good manure is made up as follows:—2 parts nitrate of soda, 2 parts of bone meal, 3 parts of kainit, 4 parts of superphosphate. Apply 1 oz. per square yard of soil weekly, slightly covering it. Apply from the time the plants are established until the fruit has set. The superphosphate has been found to hasten the maturing of the fruit.

Extension Ladders. Extension Steps.



One Ladder takes the place of Three, where different lengths of ladder are required.

Steps may be used either as either Steps or Ladder.

STRONG. COMPACT. LIGHT.

Picked and Thoroughly Seasoned Material only used in their construction.

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Price.		
10 foot Ladders	17s	6d
12 " "	21s	
14 " "	24s	6d
16 " "	28s	
18 " "	31s	6d
20 " "	35s	
22 " "	38s	6d
24 " "	42s	
26 " "	45s	6d
28 " "	49s	
30 " "	52s	6d
Up to 50 " "	87s	6d

Price.		
6 foot Steps	18s	
7 " "	21s	
8 " "	24s	
9 " "	27s	
10 " "	30s	
11 " "	33s	
12 " "	36s	

Easy to Move Around.

Simple to Hoist.

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Thirty Shilling English Lever.
(POST FREE).

A Twenty-one Years' Guarantee is given with every Watch.

This Watch is designed and constructed to last a lifetime. Its movement is perfect, embodying the newest discoveries in horological science. Although these Watches are sold at a price which brings them within the reach of all classes of the community, Cheapness has been attained not by the use of base and worthless materials; but by the exercise of a spirit of invention and by keeping the methods of manufacture well abreast of the times.

It is without exception THE BEST TIMEKEEPER IN THE WORLD. When time is money, a poor watch is worse than none at all, but a reliable one is a splendid investment and moreover not costly.

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If you want to buy or sell a Farm. If you want to buy or sell an Orchard, a Vineyard, a House or Building Sites. If you want to build a House or Borrow Money. If you want to buy or sell Mining and other Shares, or want any Commission Business attended to, CALL ON

ALDERSEY, CREASY & BEAUMONT,

CURRIE STREET, next Bank of Adelaide,

Architects and Commission Agents,

Or Ring up Telephone 1443.

The Young Folks.

NATURE STUDIES.

Marvels of Pond Life.

THE LITTLE BRICKMAKER.

Most of my readers have seen the great towering stacks, or chimneys, of a brick kiln, but I venture to say that very few have seen the little brickmaker that I am about to study with you. He not only builds a stack, but manufactures the bricks to build with. Human bricklayers build a stack from the outside; our friend builds his from the inside, for his object is to make a protection for his frail little body.

He belongs to a class of animals called Rotifera. This particular one is a tube dweller. There are other rotifera who build tubes of mud, etc., but this one's building is a brick mansion. Its body is very transparent so all its intricate and delicate machinery can be seen; that is, when it protrudes its body from its house. As we watch its movements we are filled with wonder and delight.

When searching with the microscope amongst the collection we have obtained from the pond, we see attached to a green filament a little brown stick. On closer examination we perceive the stick to be hollow, and wider at the top than it is at the bottom, and also that it is composed of little round pellets packed closely together side by side. But there is no sign of his lordship: so we must have a little patience, and keep it under observation for a minute or so, for he is generally snugly folded up on the floor of his dwelling. The first intimation of his presence is a slight quivering movement at the entrance, or top part, of his tube. If still undisturbed we see him slowly come forth in all his beauty. He has a flower-like form, with cilia vibrating around the edges of its leaves. You can see the jaws hammering and masticating the food as it passes between them, and also the little pug mill making and turning the refuse, which comes to him, into little round pellets, or bricks. He is truly a wonder of creation, and yet the vast majority of the people of the world do not dream of his existence.

Its scientific name is "Melicerta Ringens." The tube is generally about one-thirty sixth of an inch long, and is composed of about thirty two layers of bricks. The pellets are laid neatly side by side, and every one is the same size.

Let us watch him as he proceeds with his work. When he is fully expanded, the head is bent back at nearly a right angle to the body, so that the disc of cilia is placed nearly perpendicular instead of horizontal. Below the petals there is a

a projecting angular chin, which is also ciliated, and a immediately below this is the little organ we have called the pug mill. It is like a small spherical cup. On mixing carmine with the water, the course of the current is easily traced. The little cup becomes filled with particles of carmine; they are then rotated round and round, and, no doubt, some sort of secretion is added, for we notice him bend his head over and deposit a little pellet on the margin of his case. One who has followed the process, saw this repeated many times in succession, until a good number of carmine pellets were laid in their place. After a certain number were deposited in one part, he would suddenly turn round in his case and deposit a pellet. It takes from two and a half to three and a half minutes to make and deposit a pellet. It was noticed on one occasion that the cup, or mill, was brought to the margin of the case, but from some cause or other failed to deposit the pellet; it was raised for a moment, and a second attempt was made, which was successful.

It is wonderful when we think how the material drawn to its body is separated. Some is passed down to the alimentary canal, and is used as food, some is passed into the pug-mill and used for bricks; while some are rejected altogether as worthless. There is no stoppage of any one of these operations for the performance of the other. Collecting, sorting, grinding, and brickmaking are all going on at the same time.

The young are developed from eggs and the way in which they are laid is very peculiar. The eggs are shot upwards, and then caught within the tube, generally between the outside of the animal's body and the inside of the tube, gently dropping to the bottom, where the egg is hatched and the young protected until they leave home, to which they never return.

Conundrums.

Why is a dog on a hot day like a man?

Because he wears a coat and pants.

When is a clock on the stairs dangerous?

When it runs down and strikes one.

What side of a cow possesses the most hair?

The outside.

When was Adam married?

On his wedding Eve.

How much wood would a woodchuck chuck, if a woodchuck would chuck wood?

A woodchuck would chuck all the wood that a woodchuck would chuck, if a woodchuck would chuck wood.

Trade Dinners.

We have had numerous facetious inquiries as to what people should have for dinner on Sunday. We can only answer these questions broadly. As a man is, so he dines. For instance:

A policeman should dine on beets.

A printer on pie.

A gambler on steaks.

The woodcutter on chops.

The jeweller on carrots.

The electrician on currants.

The critic on roasts.

And so on. But sweethearts—how should they dine? Like cannibals, of course. Why? Well they are deer to each other, aren't they? and most people like venison.

From Rags to Rags.

Talking of boomerangs, which are all the rage just now in spaces where they throw them, here is one of the literary kind. Notice how nicely it comes back to the point it starts from:

Rags make paper.

Paper make notes.

Notes make money.

Money makes banks.

Banks make loans.

Loans make paupers.

Paupers make rags.

The Penny.

The penny is first mentioned as an English coin in the days of Ina, the King of the West Saxons, who reigned A.D. 668, and its name was regarded as a diminutive of 'pana' or 'little pledge,' or token.

In Saxon times the penny meant a silver coin of twenty-four grains (a penny-weight,) thirty of which, in the time of Ethelred, would purchase an ox and twelve sheep. The silver was 'stirling' a term thought to be derived from the Easterlings, or men from the East, who had the English coinage in their charge.

Though pennies in copper were so late, halfpennies had preceded them by 120 years, and tokens to the value of a farthing, a halfpenny, and a penny were issued by traders.

'I'm going to drive the cows home,' Jimmy Josy said, As off he proudly started, holding high his head.

Back he scampered, screaming—poor little Josy Jim!

He didn't drive the cows home—the cows had driven him!

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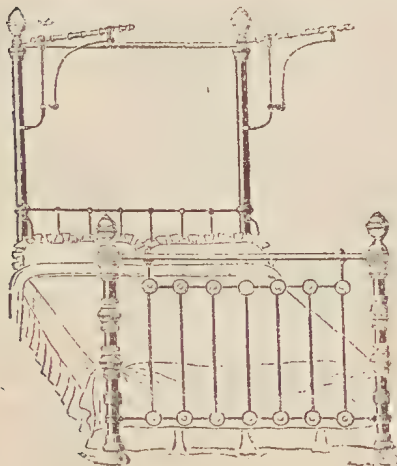
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The sterling value of the goods we forward to country clients.

Also that we do not mind what trouble we are put to as long as satisfaction is given to the purchaser.

And last, but not least, that we stock only the Best Makers' Goods.

CASH OR TERMS.



The Wheat Harvest.

The wet winter and fine ripening weather are resulting in a harvest which is estimated by the Government Statist to yield at the rate of eleven and a half bushels per acre. If this forecast is realised it means an improvement even on the satisfactory averages of the last two years, namely, 11 bushels in 1907-8 and 10.36 bushels in 1906-7. The total yield is estimated at 19,974,000 bushels, and if two million bushels are deducted for seed nearly eighteen million bushels would be left for sale, which, at an average price to the farmers of 3s. 6d., represents a value of about £3,150,000.

The total area under wheat is estimated at 2,062,000 acres, an increase of 37,000 acres over the previous year. The area reaped for grain is placed at 1,727,000 acres, a decrease of 26,000 acres; cut for hay, 334,000 acres, an increase of 63,000 acres.

Victoria is also expecting a big crop, the official estimate being nearly thirteen bushels per acre. In this state the only unfavorable influences have been a few hot winds during November—which was a very dry and warm month—and grasshoppers and takeall in certain districts.

The Government Statist adds a word of caution:—"The estimated yield is based on present conditions, and while it is not likely to be substantially increased I admit it is possible for it to be considerably decreased through the ravages of takeall, grasshoppers, and hot winds, which would mean the cutting of a larger area for hay."

—*Journal of Agriculture of S.A.*

New Cineraria—Matador.

This cineraria, which created a sensation at the last quinquennial exposition at Ghent, is an interesting novelty as regards the color, which is a decided departure from the cyanic shades of blue, passing through violet and purple to red, to which the cinerarias have hitherto been confined. Among the latter varieties that known as Old Rose, which is a decided though somewhat pale red, seemed to mark the limit in this direction; yet, by a caprice of nature, it became the parent of Matador. This

latter, a seedling, was rapidly propagated by cuttings, both at Tours and at Paris. But it proved more difficult to raise it true from the seed; in our garden at Renilly we succeeded, after many trials, in getting one plant to reproduce itself from seed, if not with perfect fidelity, at least in proportion of 60 to 70 per cent., which is a much better percentage than is usually obtained from cinerarias in general, and especially from the variety Old Rose.

From its parent Matador has inherited the short, thick-set growth, the large, light, solid, wide-spread leaves, and the flowers in a compact bouquet, well set out from the leaves. But these flowers are of a deep vivid red, for which I can find neither name nor comparison. There are few cultivated plants that are more ornamental from the artistic point of view, and *Cineraria hybrida* Monator deserves first place as a winter decorative plant, especially as artificial light enhances the natural richness and brilliance of its velvety petals. Florists will find it especially valuable, it being well adapted to window display.—Philippe de Vilmorin in 'Revue Horticole.'

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A Lay of the Post-Cart.

Rumbling, rattling, shaking, jolting,
Gallop, kicking, plunging, bolting,
Driver giving eternal 'colting'
To horses 'neath th' infliction moulting,
So merrily goes the post-cart.

Passenger holding on tight and smoking,
Vowing the thing is beyond all joking,
Cursing his folly, the saints invoking,
Swallowing pounds of sand and choking,
So merrily goes the post-cart.

Horses prancing, pulling, fretting,
Straining, snorting, panting, sweating,
In a manner to tender hearts upsetting,
And still no end of a thrashing getting.
As merrily goes the post-cart,

Driver hallooing, shouting, tearing,
For nothing on earth but the time-bill
caring,
Never a moment his sjambok sparing,
And in very low Dutch, too, sometimes
swearing
Thus merrily goes the post-cart.

Letters inside (for fear of weather),
Bills and billets doux all together
Tied up in sacks of dirty leather,
Little to them does it matter whither,
Merrily goes the post-cart.

Through the rivers, across the sluits,
Over the mountains and into the spruits,
As fast as can drag it the half-fed brutes,
Away like a flash of lightning it shoots.
So merrily goes the post-cart.

And aye and anon sounds the driver's
horn,
Not such as we hear on a hunting morn,
But such as the wretchedest jackass born
To utter or bray would indignantly scorn,
As merrily goes the post cart.

It stops—the bags to the ground are cast,
But the passenger's ills are not yet past,
For his bruises a very long time will last
And remind him he has been terribly
fast,
As merrily went the post-cart.

MORAL.
Now you who have bones that are apt to
break,
And you who have sides that are given to
ache,
Or sensitive nerves that can't stand a
shake,
A trip on the mail don't ever take,
Though merrily goes the post-cart.
But you who are made in a mould more
tough,
And think a delicate fellow a 'muff,'
If you are in a hurry and don't mind the
rough,
You'll find that the mail is well enough,
For speedily goes the post-cart.

—Exchange.

WIT AND HUMOR.

—:o:—

'Confound it, waiter! what's this?'
 'It's bean soup, sir.'
 'Been soup, yes; but what is it now?'

.....
 She—'How do you make-a Maltese cross?'

He—'By pulling his tail.'

.....
 Teacher (to Tommy who has been reading aloud, and has given no heed to punctuation-marks)—'Where are your pauses?'

Tommy (holding up his hands)—'Here they are, sir.'

.....
 'By the way, how did you come out with that drink cure you put in your husband's tea?'

'First rate. He hasn't drunk a drop since.'

'Of whisky?'

'No, tea.'

.....
 A man was brought before the governor of a prison for refusing to go on the treadmill. The governor asked him what reason he could give for not obeying.

'Me go on the treadmill!' exclaimed the prisoner, drawing himself up in offended dignity. 'Never, sir! I'd rather leave the gaol!'

.....
 Said he—'Although I don't complain, I wish you'd learn to make Those toothsome little girdle-cakes My mother used to bake.'

'I do not blame you, love,' she purred, 'For I, too, often sigh For lovely clothes and hats like those Dear father used to buy!'

.....
 'Madam,' said a benevolent-looking man, as he raised his hat to a lady who had opened the door at which he had knocked, 'I am soliciting subscriptions for a Home of Necessitous Children. We have hundreds of poor, ragged, semi-civilised children, like those at your gate, and our object is—'

'Sir, those are my own children!'

And the front door was slammed violently.

.....
 'Let me see some of your newest kid gloves,' said a woman at the draper's. 'These are not the latest style are they?' she asked, when the gloves were produced.

'Yes, madam,' replied the shopgirl; 'we have had them in stock only two days.'

'I didn't think they were, because the fashion paper says brown kids have tan stitches, and vice versa. I see the tan stitches, but not the vice versa.'

The shopgirl confidently averred that vice versa was 'rench for seven' buttons, and beguiled the ignorant customer into buying three pairs.

The Judge—'Is he a man of sober habits, isn't he?'

Witness—'Yes, sir; when he keeps away from the drink!'

First Little Girl—Does your father hate work?'

Second Little Girl—'No; indeed. It never done him no harm!'

At a railway station a woman asked a railway porter how long the train stopped there.

'Madam,' he replied, 'we stop just four minutes, from two to two to two two.'

The woman turned to her companion. 'That man must be a lunatic!' she said.

'We've got a new dog; I've called him Tonic.'

'.....?'

'Well, you see, he is mostly whine, with a slight infusion of bark.'

Magistrate: 'What brought you here?'

Prisoner: 'Two policemen.'

Magistrate: 'Drunk, I suppose.'

Prisoner: 'Yes, both of them.'

The teacher was telling them about the seasons.

He asked: 'Now, one of you boys, tell me which is the proper time to gather fruit.'

'When the dog is chained up,' replied Johnnie.

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New Goods.

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AND

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CASH

OR

TERMS.



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Direct from

the Maker.

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The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry),

CONTAINS—

Illustrations—

Prize Chrysanthemums
Mimulus
Star Phlox
Cox's Exhibition Pansy
Rosery and Pergola
Early Cauliflower
Kohl Rabi
The Cape Tulip
Tree Planting in Germany
Prize Poultry

ANSWERS TO CORRESPONDENTS

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Plant Food
Description of Flowers—
Cyclamen, Mimulus, and Phlox

The Pansy—It's Cultivation

Rosary and Pergola

The Vegetable Garden—

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Conundrums

WIT AND HUMOUR

NOTICES.

ALL COMMUNICATIONS, literary or business, must be addressed to the Managing Editor "Australian Gardener," corner Wyatt and Pirie Streets, Adelaide, and not to any individual member of the staff.

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WELLINGTON, N.Z.: Messrs. Gordon and Gotch

TO ADVERTISERS.—Particulars of rates will be supplied on application. Alterations of advertisements must be in our hands not later than the 15th of the month.

Answers to Correspondents.

— :o: —

'Viper.'—You omitted to state your name and address.

'Greasy.'—Lime dusted out of a bag is a good remedy for slugs.

'Wager.'—The Dahlia was named after Dahl, a Swedish botanist.

'C.G.G.'—Yes, you can continue to bud fruit trees of all kinds.

'Beginner.'—You may sow Pansies, Cinerarias and Carnations now.

'C.M.' Willunga.—Centipedes live on insects, so they are likely to be useful in the garden.

'Daff.'—Daffodil bulbs should be planted either this or next month for the September Show.

'A.S.' North Adelaide.—Carnations may be sown in March, April, or May; also in September, October and November.

'C.M.' Grenfell-street.—Next month is the time for the general sowing of flower seeds, as all Hardy Annuals may be sown then, and until June.

'X.L.C.R.'—The best and simplest remedy for warts on cow's teats is castor oil. Dress the teats with the oil once a day till the warts disappear—about a fortnight.

'M.B.' Mount Barker.—Artichoke is cultivated for the immature flower heads, of which the fleshy receptacle, commonly called the bottom, and the lower part of the calyx, are the part used. Sow in April or May.

'Breeder,' Glenelg.—The average duration of Gestation is:—Ass, 365 days; horse, 340 days, better breeds, 350 days; cow, 283 days; goat, 154 days; sheep, 152 days, merino 150 days, southdown 144 days; pig, 120 days; dog, 63 days; cat, 56 days.

'Enquirer,' Mount Lofty.—Asters should be sown in July or August in pans in a slight heat, either in a hot-bed or greenhouse, and, when strong enough, prick out into a cool frame, where they may get hardened and well-established for transplanting into their blooming quarters in September; or they may be sown in the open during September and October.

'Chinese Primrose.'—Primula seed should be sown in November or December for early flowering, or January, February, or March for later flowering, in nice light soil, in shallow pans; cover very lightly, and place in a frame or greenhouse. When the seedlings come up, and as soon as they can be handled, prick out into similar pans rather thinly. When they have made three or four leaves, pot singly into small pots. Repot, when large enough, into five or six inch pots, to flower in.

EDITORIAL.

Producers from the soil deserve every penny they get—and a great deal more. Sometimes they get a lot; sometimes they get nothing. But whether they get much or little or nothing the same amount of toil has to be gone through, the same amount of forecasting against the chances of the seasons, whether the great Jupiter Pluvius is going to deal kindly with them or not. His moods are most capricious. The farmers have surely mesmerised him into giving them just everything they want in rain and heat, and the thanksgiving services in the village churches this season should be full and free, loud and strong. If any class of the community more than another has reason to join in thanksgiving it is the corn-growers during the past few years. The gardeners and orchardists, however, seem to have done those things which they ought not to have done and left undone those things that they ought to have done. The weather is dry, dreadfully dry, and there is a shortage of garden stuff, except Tomatoes. It is too cold for Tomatoes; they are not ripening up nicely, and when they do the consumer finds it too cold to eat them readily. The apple crop is not up to standard, so that prices will run high for export. The codlin moth is doing well this season, and many growers are sorry that they did not do more spraying.

The articles published this month will be found appropriate for the season, dry farming being peculiarly interesting to South Australians. The climatic conditions have been for the past four or five years just all the farmers could wish for the present system of working the fields, but history has a way of repeating itself and it is worth the attention of farmers to provide against a cycle of droughts by adopting a system such as the success of what is known as dry farming has proved itself to be.

Growers of flowers will find the season's notes full of interest to them, as the dry season demands closer attention than usual, and the application of water

although simple enough in its way, can be run to waste without the results commonly expected. To water the beds and allow them to bake dry on the surface with the sun is the useless operation that amateurs generally follow, and wonder why the flowers do not respond liberally to the attention. A moment of reasoning will demonstrate that it is the roots of the plants that require water, not the surface of the ground. To get the water to the roots and keep it there the ground must have a soft well-worked surface tilth. Give the ground a thorough good soaking two or three times a week and use the hoe lightly with the rake afterwards, and the flowers will bloom continuously and strongly all through the heat without signs of flagging.

* * * * *

Growers of vegetables will find instructive reading in the notes and articles. Those never-tiring strong hard livers who supply the markets with vegetables will do well and reap a just reward for their labor if they can beat the weather with their gully springs of water. The supply is rather on the short side, and prices consequently good.

By Appointment
to
His Excellency



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P.C., K.C.M.G.

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A GROUP OF PRIZE CHRYSANTHEMUMS AT A RECENT SHOW.

Flower Garden.

—:O:—

Notes for the Month.

Although February is a very hot month, and flowers will suffer considerably unless they obtain all the moisture they need, the cooler weather, known as the autumn, will set in towards the end of March. Now, the autumn is the very best time of year in which a great deal of important gardening work can be done. It is the best time in which to plant out evergreens—that is, those plants which do not shed their leaves during the winter. To this class of plants belong camellias, most of the azaleas, rhododendrons, palms, most of the pines, and various other garden plants; therefore it would be advisable to get ready any ground, without delay, that it is intended shall be made into a garden. It would be as well, also, to get ready some place where seeds of hardy annuals and other plants can be sown and protected; for if the plants are raised in the autumn, and planted out when they are large enough, they will produce flowers very early in the spring. It is much better to plant out everything possible in the autumn than in the spring. If preferred, the seeds of annuals can be sown in the garden, where the seeds are to remain, but the chances are that the best results

will be obtained by sowing in a seed bed, box, old kerosene tin, or something of that sort, and afterwards transplanting the seedlings.

Chrysanthemums will need looking after, and watering if the weather is dry, and grubs and caterpillars should be looked for every day, and removed. If black aphid appear on the ends of the tender shoots, and between and amongst the leaves, dust them well with tobacco powder, insect powder, or spray with resin and soda mixture, or even, where these things cannot easily be obtained, with starch and water, or with soot and water. Soot-water is a good manure for chrysanthemums, but not easy to make unless you know how. Collect a good lot of soot and put it in a sugar-bag, or something of that kind, and then let this soak in a tub of water. When the water becomes the colour of strong tea it is ready for use.

Dahlias are undeniably one of the principal floral features of the season, and should be present in every garden where conditions permit. The greater the number and variety the better. The dark shades, the crimsons, clarets, maroons and purples, supply a deep rich tone, and form an effective contrast to the bright vivid colors that predominate in most gardens. The light shades, the gleaming whites and brilliant yellows, the apricot and amber tints will light up the dullest and most sombre garden in a remarkable manner. Even where a

Garden is already gay with every conceivable color of Nature's inexhaustible palette, they only serve to make it more dazzling, more brilliant. As the Dahlia blooms fade, prune back to a strong wood bud. If the plants were stopped at a reasonable height the strength and energy will be equally distributed, they will ramify in all quarters and will be masses of gorgeous blooms and rich green foliage.

Bulbs, such as daffodils, may be taken up and replanted if it is necessary to thin them out. This is a good time to plant out bulbs, especially narcissus of kinds, sparaxis, tritonias, ixias, babianas, and other Cape bulbs. Gladiolus bulbs also may be planted, or dug up and replanted when necessary.

Sow Balsam, Calceolaria, Cineraria, Cyclamen, Primula, Pansy, Phlox, also Mimulus and Petunias, Polyanthus, and Polyanthus-Primroses.

Now is the time to pot up a nice lot of Cyclamens to brighten our verandahs and glass houses in the winter. In the plentitude of sunshine and bloom of today, we must not forget that there are dark uncongenial days with which the whirligig of time will revenge us by-and-bye. Cyclamens have a peculiar grace and beauty of flower and foliage. Nature has wrought an elaborate design on each leaf in exquisite tones of green. They can be grown also in a border if it is warm and sunny and protected from frost in the winter, and cool and shady

summer. They ask above all things perfect drainage. They have a preference for a chalky or a sandy soil. A rich sandy loam combined with a little leaf-mould, mortar, and limestone rubbish is very acceptable. Always let the corms appear well above the ground, and avoid watering them while they are at rest. They can be raised easily from seed, or by division of the corms.

Iris Koemferi have been flowering gorgeously in many gardens during the past summer months. The magnificent form and rare shades of the blooms and the strong veining of the petals combine to make them conspicuously distinct. This beautiful Japanese variety can be grown quite easily even in gardens of small pretensions, provided the space they occupy can be converted into a mild swamp during their period of active growth and efflorescence. Let them therefore surround a water tap from which there is a constant drip or dribble of water. The original soil should be taken out to a considerable depth and one of a moist humic or a peaty character substituted. This should insure permanent moisture, and thus gratify their semi-aquatic tastes. They must not be protected by trees or placed in a shady position for they revel in the sunshine always, providing their roots are kept cool and moist. They can be raised from seed, but substantial divisions of the root stock planted in the autumn is the surest way for a start.

Cut back Fuchsias, Show, Regal, and Fancy Pelargoniums, and plant cuttings of same.

Save seeds, watching the plants very carefully for those it is desired to propagate by this means. Make a careful selection of seed and avoid perpetuating worthless, unattractive varieties

The sunflower came from Peru.

In the botanical-gardens of Rio de Janeiro there are upwards of 6,000 varieties of orchids recognised and described by the authorities. Some varieties are very common, while a great many of them are rare enough to command from 15 to 30 dollars each in Brazil.

Plant Feeding.

By Fred W. Timme.

Many of the ills that befalls plants under high cultivation are the direct or indirect result of misapplication or excess in the application of fertilisers. The cause of inexplicable troubles complained of every now and then by lay-gardeners and beginners is, in many such instances, traceable to practices prompted by theories of their own, apparently brimful of good logic but devoid of any sort of support by actual experience. With their way of reasoning it seems inconsistent to help along by liquid feeding a rose, a carnation or any plant already in robust health and vigor, and to deny such assistance to those needing it most, the weak, the sick and those most backward in growth. Yet such has proved the right way of doing, when the question of good or evil by the use of liquid plant food is involved.

A plant labouring under the effects of disease or slow in growth and root-action enfeebled and emaciated, or one, but recently transplanted and as yet not fully established, cannot assimilate additional supplies of fertilising matter in whatever form held forth; while a plant in vigorous health with its roots feeling and searching for nutriment in a soil drawn upon for months and now nearly exhausted, is the one most in need of and most benefited by feeding. This treatment may be applied at first in the form of a mulch or top dressing, to be renewed from time to time. Later on, when this dressing has been eagerly taken to by a network of tiny surface fibers, feeding in liquid form is resorted to, weak doses at the start to be followed by doses of greater strength applied regularly once a week or oftener, according to condition of stock and effect observed.

Feeding chrysanthemums should cease when the flowers are over half expanded, in the case of roses after flowers are cut and the variety is off crop. All potted plants with very few exceptions, when in full growth and firmly established, are helped along by liquid feeding. In no case should liquid manure be given when the soil is well dried out or the plant

languishing for the want of moisture. Nor should plants evidently already surfeited by an overabundance of acidity and moisture in the soil be fed until the appetite for more has been restored. This is in most instances of the kind accomplished by a thorough drying out of the soil, or, as in the case of valuable pot plants, by a repotting into new, sweet soil, and the exercise of moderation in watering and feeding when resumed.

The application of stimulating and fertilising matter, especially when afforded stock under mass culture in liquid form is one of the details that offers abundant opportunity to the observant grower for careful and extended study. It is only by noting their immediate and after effects that one learns to rightly use concoctions of the kind and to direct and control their action to the best advantage. But this thing of finding out by trying out comes natural to every one interested in his work, and it is this every day interest in results of practical value that has done more for real advancement in commercial floriculture than the ardor of unbridled enthusiasm displayed by most beginners and only too soon cooled down by the common work-day affairs connected with his trade.

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Primula, Double Fringed, finest mixed, 1s 6d packet

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STAR PHLOX.



MIMULUS.

Description of Flowers.

May be Sown during this Month.

Cyclamen.

Cyclamens (order Primulaceæ) are not so universally grown as they might be, presumably because they are regarded as the care of the specialist gardener in shade or glass houses. This is a good reason, too, inasmuch as the amateur gardener can hardly give the time and patience to them that they require, although the nurserymen assert that they are easily grown. On the other hand it must be borne in mind that once the Cyclamen is established very little further trouble is needed. It is said that the tubers will last for twenty years. Being comparatively rare in ordinary gardens their presence when in full bloom is always hailed with delight by lovers of flowers. The peculiar structures of the blooms is at once attractive in their rich setting of good foliage, while their perfume is delicate and sweet.

They will grow in carefully sheltered and well drained beds, but do not give the fine results that can be obtained from them as pot plants. They can be raised from seeds, but require a certain amount of detail care known only to those who study the cultivation. The better plan for amateur gardeners is to get the seedling plants from the nurseries, where also instructions can be obtained about the particular kind of light turfy loam, peat

leafy mould, or decayed manure from the cow yard, in which to plant them. If potted in autumn the spring blooms will make a lovely show after the corms have been growing about two years. If this is too long to wait and watch, the next best, and may be the first best, plan is to buy the tubers, although they run into extra expense. The first expense is practically the only one.

The name of Sowbread given to them seems peculiar to such a graceful and modest specimen of one of Nature's beauties, but it originated from the round bread like shape of the tuber, greedily eaten by the boars of Sicily, the native habitat of the flower.

Several varieties of the Persicum straw, both single and double, are worth cultivating. A beautiful snow-white is the Giganteum album, and the Purple King and Crimson King are superb blooms. The Salmon Queen is a lovely salmon tint. In specialities the Bush Hill Pioneer is a new feathered variety. The white flowers of this strain carry a distinct feathered crest of the same color upon the face of each petal. This is regarded as the forerunner of an entirely new addition to culturists of the Cyclamen, the feather adding largely to the scope of interchanging the colors of the feathers and the petals.

Mimulus.

Mimulus, or Monkeyflower, from mimos, an ape, referring to the gaping mouth. Best treated as annuals in a moist spot in the garden. They make beautiful pot plants. The prevailing colour is yellow, but the Nobilis crimson is a brilliant flower, and also the scarlet Cardinalis. The herbaceous Alatus is described as a light blue, but rarely grown. The spotted duplex Tigrinus is a novel variety. They are easily grown in a damp soil, either from seeds, cuttings, or divisions.

Phlox.

Phlox, meaning a flame, ranks high as a favourite, and a few flowers have better claim to admiration. The coloring of the blooms is intensely rich, varying down to the most delicate tints, and the flowers stood out gaily in profusion above the foliage. The growth is most favored as seedlings pricked out in winter. The species grown by almost everybody is Drummondii, because of the various number of varieties. In fact one need hardly enquire for varieties outside of this species for beautiful bloomers, large as the choice may be. As perennials a number of varieties give intense satisfaction to specialists who can produce beautiful blooms all through the year. Their cultivation from divisions and cuttings require perhaps more than usual attention, especially during the hottest part of the summer heat, when they should be growing strong. Specialists differ upon the best system to be adopted, and we shall be glad to publish the experiences of growers upon their particular methods of cultivations.

Polyanthus.

Polyanthus is a race of Primulas derived from a class between the Primrose and the Cowslip. They require sheltered positions. Their pretty foliage and dwarf habits make them favored for edgings, and also as pot plants for the shade-house.



COX'S SPECIAL EXHIBITION PANSY.

The Pansy.

Its Cultivation.

[By R. Blee]

It is very seldom that I meet a person who does not like the Pansy. It is just as easy to grow a good bloom as a bad one. Pansies are so easy to grow from seed that any person with a small plot of ground can have abundance of flowers for several months in the year. The most that is required is to give them plenty of water during dry weather and a good mulch of manure keeping the dead flowers picked off, and as they begin to get shabby cut back, when another flowering will result. Although I make it appear such an easy matter to grow Pansies—and I admit any schoolboy can grow his Pansy plant—there is a wide difference in growing them simply as flowers and cultivation fit for exhibition. The standard rule of judging is not upheld with the Pansy as it should be at our Shows.

—Position.—

This should be in an open aspect, clear of trees, and for early flowering ground sloping north-east is best; for late flowering ground facing south with a breakwind to the north will do. But I find the Pansy comes on early north of Adelaide, as the subsoil is composed of limestone, inducing good drainage, which makes the ground warmer.

—Making the Beds.—

These should be about four feet wide. January is the most suitable time for making them.

—Soil—

Suppose there is not good soil to start with, take out to about 18 inches, not less than 15, loosen up the bottom after which put in some ordinary rough loam and manure to the depth of 6 inches, filling the remaining foot with good loam, mixed with a third of cow or horse manure of equal parts, to be well rotted; the whole to be turned over several times before planting, without mixing the bottom six inches.

—Propagation.—

There are two ways of doing this. One by sowing seed, the other by cutting. The first should be put in about the middle of February, and fortnightly sowing up to the end of March or even later. Shallow boxes, 5 inches deep, are suitable, and I find a galvanised iron case answers well for this. Fill in with sandy loam up to 1 inch of top, the whole when pressed down, well watered. Sow seeds half an inch or more apart. If they are sown too thickly they will most likely damp off. Cover over to the depth of an eighth of an inch, moisten then put in a shady place. Cover with glass slightly darkened, and in from ten to fourteen days the plantlets will appear. Then gradually remove the glass. Do not keep them too wet. In about five weeks the plants will be ready to handle, when they may be pricked off three or four inches apart into shallow cases, using soil much heavier than for seeds, and keep from strong sunshine. For cutting, young off-shoots

are most suitable when they are about two or three inches long, with the heel attached, which does not require trimming putting them into very sandy soil, pressing about bottom of cutting firmly. Keep in shady place. The best time to strike the cuttings is from March to November. Do not let them want for water or flower too much if cuttings are wanted for March.

—Planting Out.—

As a rule I do the first planting from the 5th of May to the 25th. The rows should be about 9 inches apart each way. After planting give a good watering, and keep free from weeds. This can be done by constantly moving the soil in dry weather, which I consider is one of the most important parts in the cultivation of plants. It tends to keep the ground cool in summer and warmer in winter, besides clearing the land of weeds. Too many shoots should not be allowed to grow on a plant, five is plenty. Keep the plants from flowering till within a fortnight of a Show taking place.

—Watering, Manuring, Shading.—

In warm weather a watering twice a week is beneficial, with syringing overhead after sunset until the flower begins to expand which are intended for exhibition. Give about the same time a good mulch of rotted horse manure. Stimulants can also be applied in liquid form of cow manure, which is the safest to use. Make it like weak coffee, applying once or twice a week. Other manures can be used, but I find this is the best. Shading is sometimes wanted to make the flower come to time. This can be done by partially covering the plant with pieces of cardboard so as to prevent the sun striking down on the flower. It is also a good plan to put something under the plant to keep the flower clean.

—Diseases and Insect Pests.—

The Pansy is often attacked with mildew. The best remedy is dusting with sulphur before the dew is off the plants. Red spider and green fly get into the points of shoots and disfigure the buds. Spraying with kerosene emulsion will kill them before the plant comes into flower. Sparrows do a lot of damage to the young buds and shoots by eating them. Place cotton across the beds. This will sometimes stop them.

—Staging for Exhibition.—

A good exhibitor will always stage his flowers or plants to the best advantage, knowing that good setting up is a point with judges. I think they look better in their own foliage than in the white collars now used. The box should be inclined a little, not flat. If collars are used, two inches for show, three inches for fancies, are plenty large enough.

The various points of the Pansy will be dealt with in our March issue.



NOTICE TO FRUIT AND PLANT DEALERS.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.
2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.
3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.
4. No plants other than those growing in pots having soil attached to their roots will be admitted.
5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.
6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.
7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.
8. No plants or portions thereof will be admitted from any State or country where phylloxera exists unless accompanied by a declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in the exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phylloxera exists or has existed in the plantation from which the plants originated.
9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.
10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace.

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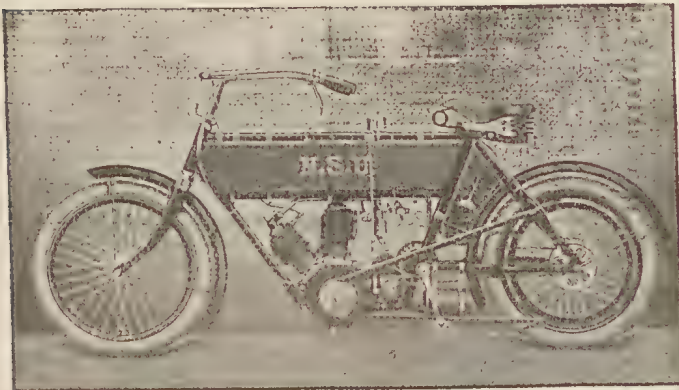
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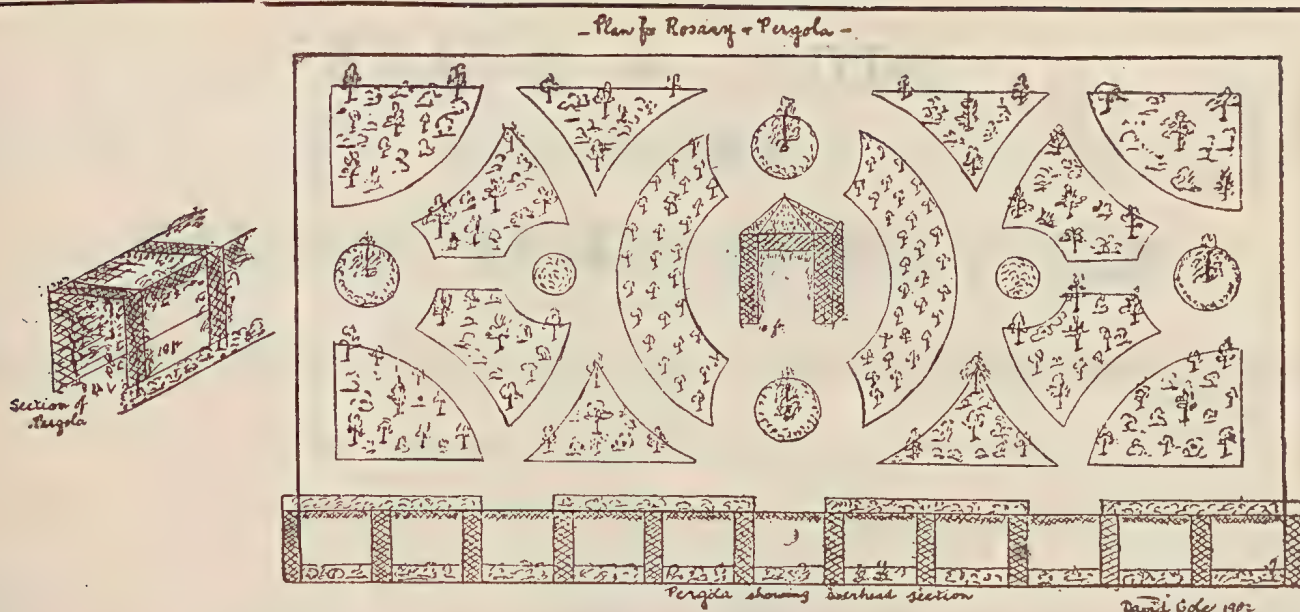
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PLAN OF ROSARY AND PERGOLA. Pergola showing Overhead Section at Bottom of Plan.

ROSERY AND PERGOLA.

By David Cole.

No garden in England is considered complete without a pergola, and rightly so, for what is more delightful than a walk shaded with festoons of Roses, Westeria, Tacsonias, Clematis, and other beautiful climbers trained to the uprights and crossbeams. The wonder is that in Australia particularly they were not introduced years ago. In England they are generally constructed with rustic poles. The ideal place for a pergola is in conjunction with a rosary, as shown in the sketch. The structure in the sketch is my own idea, built for the dual purpose of beautifying the garden and to make a breakwind by leaving one side all latticed. The laths are crossed 4 inches apart, which gives room to put the hand through when tying up the climbers. It also serves the essential purpose of allowing the wind to filter through, which for many reasons is better than having the laths nailed closer together. If the position of the garden does not require a breakwind another idea is to have the pergola constructed through the centre of the rosary each way to form a cross. The sketch given, however, is simple, and designed to show what is required in making a rosary.

In the first place, care should be taken to adapt the design of a rosary to suit the particular piece of ground and surroundings. It must be simply a scroll or geometrical to suit the convenience of the gardener in moving the hose about, and in using the lawn mower. A principal feature of the design should be to make the rosary appear as large as possible, with everchanging views to show off the beauties and peculiarities of each class of rose, such as the Banksias on the pergola for breakwind, and for the front Cloth of Gold, Devoniensis, Gloire de Dijon, and climbing Souvenir de la Malmaison. The pillar roses in the larger beds should be trained to rustic posts with wire netting for tying. Then the beds for Moss roses should be well in view. Here I may mention that Moss roses should always be pegged down. The bush is of a dwarf habit growing on its roots. Peg the growths down to the ground with strong pegs, and each eye will break and throw up a flower. By bending them over they will throw up shoots from the base, which are to be pegged down next year, and the old shoots or growths cut away. This is the only method to make them a success. Equally careful must be the management of the other roses as to habit of growth, color, &c. The various classes should be kept separate if possible.

The sketch shows four large round beds for pillar roses trained to be rustic posts 10 ft. high, or on tripods—posts for preference. The edging of the plots is of Fairies. The two smaller round beds are for the pegged down common Moss rose. Prominent corners and centres of beds, where large plants are marked on the plan, are for strong-growing standard roses trained to strong rustic posts 6 to 7 ft. high and dwarf roses planted in between.

January and February are the best months for preparing the ground for a rosary. To make it permanent and a thing of beauty for many years it must be trenched 2 or 3 ft. deep. The bottom of the trench must be picked up and manure in plenty thrown in with bonedust well worked and mixed with the soil as the operation proceeds. Care must be taken to keep the manure below the first foot of surface soil, otherwise it will be in the way of levelling. Manure can always be worked in the surface soil afterwards. Different soils require some judgment in the matter of trenching.

If the subsoil is of a rubble limestone I would decide to have gravel walks. Rob the walks of the good soil on the top, and run it with a barrow on to the beds. Then put the limestone rubble out of the trenches on to the walks. The gravel walks should be arranged that you can

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stand the sprinkler on them, throwing the water clear, and enabling you to walk about them immediately afterwards without being wet under foot. To make the gravel walks set properly, the large stones should be raked in to the bottom as the work proceeds, leaving about a foot of gravel on top, and the water will drain away as fast as it comes. Level the surface to its proper height with boneing rods and line, and then mark out the plots. If the ground is not properly prepared and drenched the roses will last only a few years.

If the soil is all deep I would advise planting buffalo grass for the walks. The grass can always be kept neat, and the bright green makes a nice contrast to the beds of roses.

Jonquills and other bulbs go well with roses, as they can remain in the ground. Carnations and Pansies also do well with the roses, and make a good variety of coloring, both in foliage and flowers.

If rustic posts are used for the pillars

and pergola uprights, I must let you into a little secret of which few gardeners know the value. When putting the posts into the ground always place them in the reverse way to which they grew; that is, upside down. If possible cut them to have a fork in the ground. This will strengthen them to a good firmness, and they will not rot. The theory regarding this little secret is that during the growth of the timber the sap rises in a particular way through the structure of the wood, and water will rise in the same way to the surface of the ground when the wood is put in the ground, and cause rotting. But if the wood is reversed when putting the posts in the ground the water will not rise, and this prevents the rotting.

If rustic uprights are not used, then take 4 x 4 in. jarrah timber. Put the posts up in pairs 2 ft. apart, leaving a space of 10 ft. between each pair of posts. Make it 9 or 10 ft. high above the ground. Cross beams 3 x 2 and 10 ft. long will give a spacious footpath. Pig

netting of 4 in. mesh should be stapled up the pairs of posts and over the top. The wall plate should be 4 x 3 timber, and the pig netting 2 ft. deep hanging along the front. As before mentioned, lattice work of 4 in. mesh should be nailed on to the windward side, and no more effective breakwind is possible. This is far better than a solid wall of wood or iron, for if the structure be made solid a strong wind will curl over the top and is responsible for a great deal of damage. On the contrary, no matter how strong the wind may be, the lattice has the effect of breaking it into a gentle breeze.

After many years of experience in England, and having introduced pergolas combined with rosaries into Australian gardens, I can confidently recommend these suggestions as peculiarly suitable to this climate, and am quite satisfied that no other part of a garden can be made more beautiful and attractive, especially in the heat of summer.

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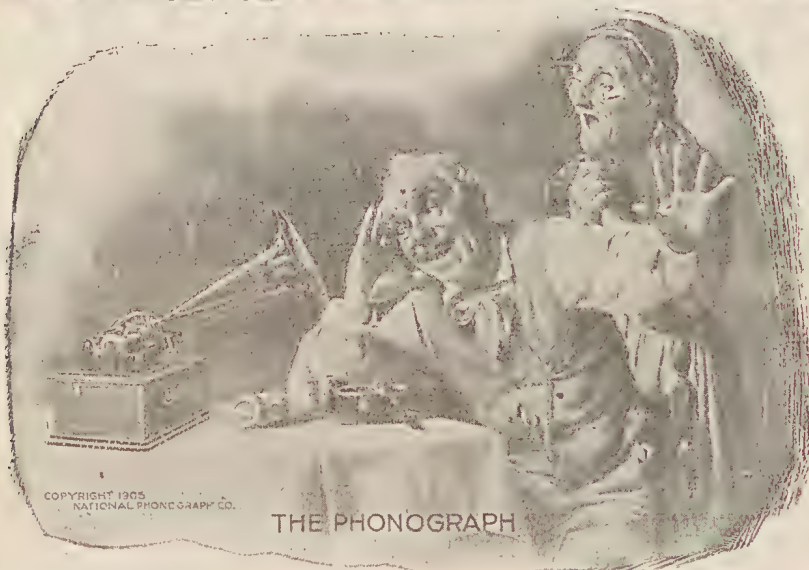
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EARLY LONDON CAULIFLOWER.

The Vegetable Garden.

Operations for the Month

February is generally about the hottest and driest month of the year throughout the State, except in some localities on the coast. It requires much perseverance, doubtless, in the dry places to raise vegetables of any kind, especially where water is scarce. Constant cultivation with the hoe, no matter how dry the soil seems to be, will be most beneficial to the plants. One great secret in raising vegetables in dry weather is having the ground dug deep before the vegetables are planted or sown. When it has been dug or trenched (say) 2 or 3 feet deep, the roots of the vegetables are enabled to penetrate to a great distance into the soil, and obtain moisture below the surface.

Liquid manure, which can be made from the dung of animals soaked in water, is of great value for vegetables, but should not be used over strong, especially if it has fermented, in this case it should be considerably diluted with water. Experience will soon show the best strength to use, if the effects of various applications be noted carefully. Save all waste water from the house, and it will be found of much value when the water supply is short. If liquid manure be used it should on no account be poured over the leaves of vegetables, but

be applied to their roots only. This can most easily be done by drawing away the soil, or rather by making a little shallow furrow or trench, into which the manure can be poured, and when it has soaked into the ground the soil should be covered over again. There is but little trouble about this work, which can be effected very quickly with a hoe.

In order to raise a sufficient supply of vegetables for transplanting later on, a good many different kinds of seeds must be sown, and some trouble should be taken to make suitable seed-beds or to prepare boxes or seed-pans in which to sow the seeds. Some stuff for shading will be necessary.

Beans, French or Kidney. — This vegetable may be sown to as great an extent as may be required. Make drills about 2 feet apart for tall-growing varieties, and sow the beans about four inches apart in the drills, covering the seeds $1\frac{1}{2}$ inches deep. Those previously sown should be producing large quantities of nice young pods in the pink of perfection, and if the pods are gathered whilst tender, the beans will produce more and more for some time. A few plants may be kept for seed production, and from them no pods should be gathered, but all should be allowed to ripen. Any old beans which have ceased to bear should be removed, and the ground cleaned up, manured well, and

made use of for anything other than for plants belonging to the same order as beans.

Beet, Silver, or Spinach, is an excellent vegetable to grow. Sow a little seed in rows, and afterwards thin out the seedlings when they have attained a height of about 2 or 3 inches. It may, perhaps, be more convenient to sow in a seed-bed and afterwards transplant in much the same manner as is adopted for cabbages, &c. The soil for this plant should be heavily manured with well-rotted, rich manure, for the leaves, and not the root, is the part used as a vegetable. The rows in the permanent bed should be about 2 feet apart, and the plants should stand about two feet distant from one another.

Borecole or Kale. — If desired make a small sowing. The seed may be sown in seed-beds or boxes, and the seedlings afterwards transplanted. The soil should be made rich with well-rotted stable manure. Plant in rows two feet apart each way.

Broccoli. — A little seed should be sown either in boxes or a seed-bed, which should be shaded and watered. When the plants are strong and hardy they should be planted out, about 3 or 4 inches apart, in a small, well-prepared bed, in order that they may develop well for further planting out in their permanent places.

Brussels Sprouts. — This really excellent variety of the cabbage is very suitable for cool districts and should be grown wherever it will thrive. The seed should be sown in a box or seed-bed, and every care should be taken in watering and shading sufficiently. When the plants are large enough they should be moved to well dug up but not too heavily manured ground that has been prepared for them. The growth should not be too rank, and the plants must not be forced, or else the young sprouts will not form well. Plant in rows about two feet six inches apart. The plants to stand about two feet from each other in the rows.

Cabbage. — Sow seed occasionally, not too much at a time, but just sufficient to keep up a continuous supply of

plants. Sow thinly in little rows, about 2 in. apart. Plant out strong young cabbages from the seed-bed to some well-manured ground for early use.

Cauliflower.—Seed of this favorite vegetable may be sown during the month for future supplies in a seed-bed or box where it can be shaded or watered easily, and transplant all the plants you have ready. Select good strong sturdy plants and set them about three feet apart each way. Do not break or injure the roots more than can be avoided when raising the plants from the seed-bed. The distance apart the plants should stand will depend on the richness of the soil. The better the soil the wider apart the cauliflowers should be planted. The distance may vary from 2 feet or 2 feet 6 inches to 3 feet. At the same time it should be kept in mind that although the soil may be poor, and but little manure has been dug into it, the plants can be fed by liquid manure, and made to grow to a very large size. In a few words, the distance at which the plants should stand from one another will depend, in a great measure, on the quantity and quality of plant-food available.

Celery, Red and White.—A little seed may be sown during the month so as to have a supply available if required. Sow a pinch of seed in a box or pot. When the plants come up, and are large enough to shift, prick them out in a small bed, where they can grow strong and hardy.

Celeraic, or Turnip-Rooted Celery.—Sow the seed in a box of nicely prepared soil. Prick out, like celery. When the plants are about six inches high, plant out in rich free soil, in rows 18 inches apart and a foot in the rows.

Cress and Mustard.—Sow a little seed occasionally to keep up a supply. Make the ground rich with well-rotted manure, and if the weather is at all dry water frequently.

Cucumbers.—Thin out the growth of cucumbers and marrows, removing old branches and giving preference to young bearing shoots. Keep the soil around them fairly moist, but after they have swollen to the required size, and are

commencing to ripen water sparingly. Cut them quite small, and do not put the plant to the unnecessary trouble of ripening large fruit when the small ones are so much more delicately flavored.



KOHL RABI.

Kohl rabi, or turnip rooted cabbage.—A few seeds may be sown in a seed bed. Seedlings to be planted out later on when they are large enough to move.

Potato.—An effort should be made to raise a good supply of this useful vegetable. The soil should be well drained, well worked, and heavily manured with the droppings of farm animals. For seed, medium-sized whole potatoes are preferred to large ones cut into sets. The rows had better be wide apart, say three feet, and the sets put in about 1 foot apart in the rows. Plant about 5 or 6 inches deep. If it is necessary to use cut sets take care that the cut sides are dry before planting.

Radish.—Sow a little seed from time to time and use the plants as quickly as they are ready. A supply of this vegetable, if young and tender, is always useful. If well grown the tender leaves may be eaten as well as the root. Make the ground fine and manure well with rotten dung. Sow in little rows, thin out, and keep free from weeds.

Rape.—Sow a little of this useful vegetable in light rich soil in drills half an inch deep and 8 inches apart, and sow thickly.

Savoy.—Sow a little seed of this—one of the best of the cabbage class.

Tomato.—Tomatoes are in full season, and are always a profitable fruit; they yearly gain in popularity owing, no doubt, to the variety of uses they can be put to in cooking. They are now making a very free growth and require a good deal of checking. Any excess of water will cause superfluous growth, which is always at the expense of the fruit, therefore keep the soil round about tomatoes moist, but avoid overwatering them. Continue to keep the side-shoots pinched, and any leaves that threaten to interfere with the ripening of the fruit may be freely thinned. The fruit wants direct exposure, especially as the autumn and cold weather approaches. Gather as soon as it ripens, and remove all overripe and rotting fruit at once from the beds.

Turnip.—Sow in light, rich soil, in shallow drills 15 inches apart; sow the seed thinly, and when they come up thin out to 8 to 10 inches in the rows. To have turnips mild and tender, they must be grown quickly; wood ashes are very good as a manure—so is bonedust, guano, and superphosphate. The soil should be work nice and fine.

Interesting Notes.

The onion hailed from Egypt.

Celery originated in Germany.

Spinach was brought from Arabia.

Parsley was first known in Siberia.

Cucumbers came from the East Indies.

The radish's home was China and Japan.

Tomato plants are now growing up and should be staked to prevent contact of the fruit with the soil.

Liquid manure should be frequently applied to cucumbers, tomatoes, at this season of the year.

Keep the eye open for caterpillars and other destructive pests which are so fond of young growth of all sorts.

No wonder the common snail is able to do much damage in a garden. Its mouth, says a scientist, is armed with a saw-like tongue, and distributed on the surface of the tongue are tiny teeth to the number of about 30,000.

Do Poultry Pay?

Yes, if you REGULARLY use

"KONDO" Poultry Food.

POULTRY FOR PROFIT is a very interesting subject, and one that is not yet definitely settled in this country. However, there is one thing certain, if Hens can be made to lay a large number of eggs, and they do not die from sickness, Poultry-keeping would pay, and pay very handsomely. "KONDO" Poultry Food will assist the former, and by keeping the birds healthy greatly reduces the latter.

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Household Hints.

Never dry coffee-pots with a cloth. Scald, and leave open in the sun to dry.

TO REMOVE INKSPOTS.

Inkspots can readily be removed from the leaves of books by using a solution of oxalic acid in water.

A TOILET 'TIP.'

Lanoline should never be used alone on the face. When combined with white wax and spermaceti, it is a most excellent tissue builder and eradicator of wrinkles. It will not, when so combined, cause a growth of hair on the face.

FOR CHAPPED HANDS.

Chapped hands are no doubt troublesome to some readers. Here is a useful palliative recipe: Unsalted lard, a quarter of a pound; yolks of two fresh eggs; rose water to mix well. Add a large spoonful of honey and enough fine oatmeal to work it into a paste.

SAVE YOUR CELERY TOPS.

Never throw away your celery tops, except those that have turned yellow or that are decaying. Keep all the leaves to put in the soup, or dry them and use as flavouring. A little soup stock and a few bones left over from finished cold joints, together with the leaves of a head of celery make excellent soup when boiled down.

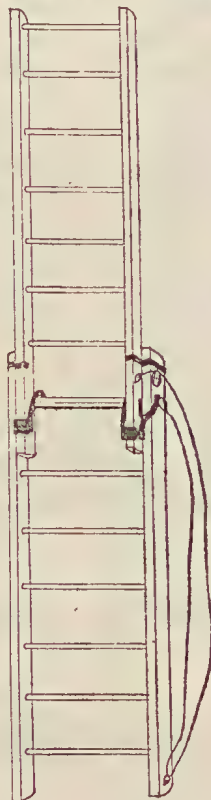
DERBYSHIRE PUDDING.

Mix gradually one pint of milk with two tablespoonfuls flour, a little baking powder; boil till quite thick, and set till cold, then add three ozs. butter beaten to a cream, quarter pound of fine sugar, a little salt, the grated rind of a lemon, the yolks of five eggs, and the whites of three, or egg powder. Mix thoroughly, put a paste round the dish, put in the mixture and bake in a quick oven. Serve hot or cold.

GIBLET SOUP.

Stew one set of goose or three sets of ducks giblets for three hours in two quarts of water, with a bunch of sweet herbs, an onion cut up, and a little Busy Bee brand pepper and salt. Soak for twelve hours a pint of haricot beans; boil them gently for about two hours; mash half of them and pass through a sieve. Take up the giblets and cut them in small pieces; mince the liver fine; then return these to the strained gravy; add the beans and sufficient stock or water to form a thick soup. Put the water in which the beans were boiled, with them into this soup.

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14 " "	24s	6d
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18 " "	31s	6d
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28 " "	49s	
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Up to 50 " "	87s	6d

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6 foot Steps	18s	
7 " "	21s	
8 " "	24s	
9 " "	27s	
10 " "	30s	
11 " "	33s	
12 " "	36s	

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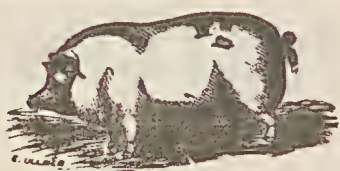
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THE FARM.

Diseases of the Skin.

(Continued from last Issue.)

S. S. CAMERON, M.R.C.V.S., Chief
Veterinary Officer, Melbourne, in the
Victorian "Journal of Agriculture."

NON-PARASITIC SKIN DISEASES.

—Grease (Pustular Eczema).—

Grease is an exaggerated condition of cracked heels extending beyond the hollow of the pastern and perhaps invading the skin as high as the knees and hocks or even above.

Nature and causes.—Some horses appear to be constitutionally predisposed to grease and it mostly occurs on hairy-legged horses of the heavier breeds and in them the affection is much aggravated if, from lack of tone or want of exercise, the legs are allowed to become stocked. Given such a predisposition, the causes which have been described as likely to induce cracked heels in other horses, particularly prolonged exposure to wet and cold, will set up an attack of grease. A large part is played in the extension of the disease by the irritant moisture which exudes from the already affected surface as also by the accumulation of scurf and filth and by the splashing of urine in tables with insanitary floors. Indeed,

grease may be aptly described as a typical local filth disease. The clipping of the hair at the back of the fetlock and pastern predisposes to grease, as when this is done the natural protection for the skin is removed and exposure to the cold, damp and dirt is brought about. In some cases the skin becomes enormously thickened and warts form in abundance all over the affected surface (grapy grease). The affected parts may suppurate and the discharge is usually very foul and sickening.

Treatment.—In mild cases the treatment recommended for cracked heels may be affected, when there is much hair the dressing of the part thoroughly with an ointment is a tedious matter and astringent lotions or liniments are more likely to be affected. If the discharge is foul the parts should be washed with hard soap lather and some disinfectant such as Condy's fluid applied before the healing dressing is put on.

Treatment often necessarily extends over a long period and it is found advantageous for the dressing to be changed every few days. That this may be done the following list of dressings is given:—

Tincture of Creosote (1 part creosote to 6 methylated spirit).

Strong Tincture of Creolin (1 part creolin to 6 methylated spirit).

Tincture of Sulphuric acid (1 part acid to 15 methylated spirit).

Solution Chromic Acid (1 part acid to 9 methylated spirit).

White Lotion.

Powdered Wattle Bark.

Oxide of Zinc and Powdered Starch, equal parts.

Oxide of Zinc and Powdered Charcoal, equal parts.

Horses need pure water if they are to thrive.

Dry Farming in Semi-Arid Districts.

By W. Frank McClure.

A great deal of attention is being attracted at this time to a system of agriculture known as 'dry farming,' which is being successfully used in the semi-arid districts of Colorado and other Western States in place of extensive schemes of irrigation. By 'semi-arid' is meant a territory in which the annual rainfall is less than 20 and more than 8 in. By dry farming, many thousands of acres which, on account of their location, could never be reached by irrigation ditches, are reclaimed. Some of this acreage has long been styled 'grazing lands, and considered useful for nothing else.

'Dry farming,' briefly stated, consists in so preparing the soil in semi-arid regions that it will catch what little annual rainfall there is, and store it within reach of the roots of the plants to be grown. This, as might be supposed, requires a firm solid foundation beneath the soil. The soil above is kept firm and loose, and acts as a mulch, keeping the moisture from escaping into the atmosphere, much as a brick or plank keeps the ground directly under it moist even in a beating sun. With such preparation of the soil, grazing lands will often yield as high as 40 or 50 bushels of wheat to the acre, or more than the yield of the Eastern States, where the natural rainfall is adequate.

The last two years have witnessed the greatest progress in the new plan of reclamation. Not only is 'dry farming' being extensively employed in Colorado, Kansas, and Nebraska, where it was first introduced, but in Eastern Utah, Oregon, Washington, Wyoming, and Idaho, where heretofore great tracts of prairie land could, in many instances, be bought as low as 50 cents an acre.

V I C E R

Serves

The first experiments in this line date back more than a decade. The founder of the method is Prof. H. W. Campbell of Nebraska, under whose personal direction to day are some large model farms in the West, illustrating the marvellous accomplishments of 'dry farming.' Five years ago the Department of Agriculture began to lend its assistance in the matter, carrying on investigations as to the localities in which 'dry farming' will bring the best results. The department is also searching in many parts of the world for kinds of alfalfa and wheat and other plants which will yield the largest returns with a rainfall of less than 20 in.

As to land, it may be stated that high plateaux or rolling hills afford a better supply of rain to be stored by 'dry farming' methods than do the valleys, and they are, therefore, usually chosen first.

Within the past year Gov. McDonald called together a congress of 'dry farmers.' Many ranches are being broken up to give place to the new system of farming, for it does not pay to raise cattle at the present prices at which this land is selling. In fact, much of the upland country is being turned into a veritable garden.

The first operation in preparation of the soil is ploughing. This must be deep. A disc or a mould-board plough may be used, depending on the character of the ground. One object of the deep ploughing is to provide an adequate reservoir for the storage of the rainfall. Gang ploughs, with twelve to sixteen ploughshares in each, are a common sight. These ploughs are drawn by traction engines.

Steam ploughing helps out wonderfully in this work. In some of the Western States it would be out of the question to secure sufficient men and teams to accomplish the ploughing of the hundreds of

thousands of acres annually being reclaimed by 'dry farming.' Steam ploughing costs less than half as much as ploughing with teams. It is not unusual for one ploughing outfit to turn 3,000 acres of sod into cultivated land in one season. Two men are needed to operate the engine, besides a teamster and team for hauling fuel.

A sub-surface packer follows the plough, drawn by the same traction engine as the plough. This packer is similar in shape to a disc plough, except that it has ten wheels. These wedge-shaped wheels or discs are 18 in. in diameter, and are arranged vertically on a shaft 6 in. apart. The object of the sub-surface packer is to firm the soil. A smooth roller, if used for this purpose, would have the effect of packing the surface soil rather than that of the sub-surface. The wheels of the packer, however, are so arranged that they firm the soil in the lower portions of the furrow, restoring capillarity where ploughing has arrested it. A smoothing harrow next follows, leaving a pulverised layer on top, which prevents the moisture from below from reaching the surface and evaporating.

The constant care and working of the soil on which the crops are to be raised are said to be equally important with the rainfall itself. The pulverised ground must not be allowed to pack or break in any event. To avoid this, the harrow is run over it after each rain. The working of the soil begins several months before seeding, and must also be continued after seeding.

A great many people cultivating their land under the new system, aim to raise but one crop from the same ground in two years. They divide this land into two equal parts, and use one part for crops one year, and the other the next. This admits of what is known as 'summer

culture' on the part not in use, and the storing of a season's rains in the soil reservoir. Again, it may be feasible to allow the land to produce crops for two years, and alternate one year of 'summer culture.' Where crops are planted every year, ploughing must quickly follow the operation of harvesting, the aim being to save all possible moisture in the ground and simultaneously prepare the soil for the next rains.

It is confidently expected that the time will come, when land on which but a 10 in. rainfall is now recorded, will be made to blossom as the rose. This will be accomplished by further advances in scientific discovery. At present, districts having less than 14 in. rainfall are not regarded as profitable. An educational movement for the scientific study of 'dry farming' has already been talked of. Not all attempts at 'dry farming' are a success nor will be, until the mass of the people using it understand the principles on which it must be carried out. The rainfall varies in different years, and this emergency must be met in a scientific way. Conditions differ also in different localities.

The establishment of more Government experiment stations will greatly assist different sections. Several are to be established, it is understood, this year. At Cheyenne, Wyoming, the Board of Trade not long ago established an experiment station, assisted by the Government and the railroads. It was here found that although Cheyenne is at an elevation of 6,000 ft. above sea level, wheat, rye, oats, barley, alfalfa, field peas, and sugar beets can be grown profitably. As a result of the experiments, the ranchmen in Wyoming are buying thousands of dollars' worth of farming machinery, and are breaking up large acreages and sowing alfalfa and other grasses and grains. Ranches are also being sold for colonisation purposes.

—'Scientific American.'

O Y T E A
You Right.

Working a Small Farm.

With the high price of land, and the relatively low prices for produce, it behooved small holders to work their land to the best possible advantage. While he must get his work done as cheaply as possible, he thought it a great mistake for the small holder to depend upon his neighbour for the use of drill or binder. There was a right time to get a crop in and off, and unless the farmer owns his own implements, he cannot do this. He may prepare his land well, and be anxious to sow early, but is unable to get a drill or his crop may be ready to cut, but the binder cannot be obtained for a week. Under such circumstances the farmer cannot get the best results. One or two seasons' losses on a small area would pay for the cost of the necessary machines. It was a mistake to grow the same class of crop year after year. If wheat is sown one year, put in oats the next, and follow with peas or fallow. In a district like this, where the holdings are so small, it will not pay to fallow too often; once in three or four years was sufficient. A crop of peas manured with bonedust will put the land in good condition for a hay crop, peas do well here, and there is a ready demand for them. He considered bonedust better than superphosphate in this district; the latter seemed to exhaust the land after a few applications. Peas should also be planted in rotation with potatoes; if the latter are planted year after year, the land seems to get stale, whereas after peas the soil is improved, and works much better. An important factor in working the farm was a good team of horses. In this district, where most of the land is hilly and hard to work, a farmer will get along much better with a team of good young, active, horses instead of older animals. The younger horses do the work easier and keep in fair condition where old horses get poor, unless they get better feeding and attention. The farmer should, therefore, breed one or two foals each year; the feed consumed will not be missed, and the horses will be ready to take their places in the team as the others get old. A small flock of sheep is of

advantage; they will clean up the stubble much better than horses or cattle, bring in a fair income, and manure the land.—Paper by Mr. E. Scheidow, of the Clarendon Branch Agricultural Bureau.

Another Drought Predicted.

Mr. Clement Wragge, who, while Government Meteorologist in this State achieved a reputation for his accurate weather forecasts, and although at present on a lecturing tour in India, does not forget his old friends in Queensland, but occasionally gives them a friendly warning as to the future seasons. In March 1906, he wrote to the London 'Standard,' foretelling another drought, and ended his letter as follows:—

'Now is the time for Australians to wake up and lock the rivers for water conservation and irrigation. Better so than trying to keep out the Japanese. For another Australian drought will attach to the next solar minimum after 1910 as surely as little apples fall in autumn. Laughing and ridicule will never alter fact, and Galileo's spirit will bear full witness.'

A few weeks ago he returned to the charge, and has declared that the rainfall in Australia will now fall off, but he gives the comforting assurance that the coming drought will not be so severe as the last.

Will farmers and dairy farmers seriously consider the probability of another recurrence of the drought, which, owing mainly to the neglect to conserve the superabundant fodder of previous fat seasons, entailed such ruinous loss upon the improvident ones? The silo should be in evidence on every farm, and now is the time to prepare for the inevitable. By and by it will be useless to call upon Jupiter for help.

—Queensland 'Agricultural Journal.'

Robert Hill,
Chaff and Grain Merchant
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Chick Meal, and all kinds of
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Miscellaneous Items.

Rye came from Siberia

Oats originated in North Africa.

The most of a horse's muscle is in the hind quarters.

The Canadian farmer works from twelve to sixteen hours a day in the busy season.

The potato industry is an important money-making industry when looked after properly.

The lay of the old speckled hen is more inspiring to the farmer than the lay of the spring poet.

A great many of the ills which horse-flesh is heir to are to be attributed to injudicious feeding.

Free exercise and a varied diet will aid materially to give to pigs the streak of fat so much desired.

Young pigs pay better than old ones for the feed they eat, and they make the best hams and breakfast bacon.

If a diet of milk and wheat middlings is fed to young breeding sows they will grow rapidly and will not fatten.

A pebble in your shoe will give you a fair idea of how a horse will feel with a sore under any part of the harness.

As a rule young sows have fewer pigs in a litter, and cannot give them so good a frame to put fat and growth upon.

The effective agricultural value of superphosphate is dependant on its percentage of phosphate of lime soluble in water.

'Like master, like man,' is a true proverb, and if a farmer is heedless about the care of his implements it is very unlikely that the men will trouble themselves.

Farmers desiring mules should bear in mind that the larger the mule the better, other things being equal, and that a male and female should be paired to have a pleasant working team.

A New Zealand farmer has a ewe that has had 16 lambs in five seasons, and all but two were successfully reared. The series were two, two, five, two, and five. The ewe is now ten years old.

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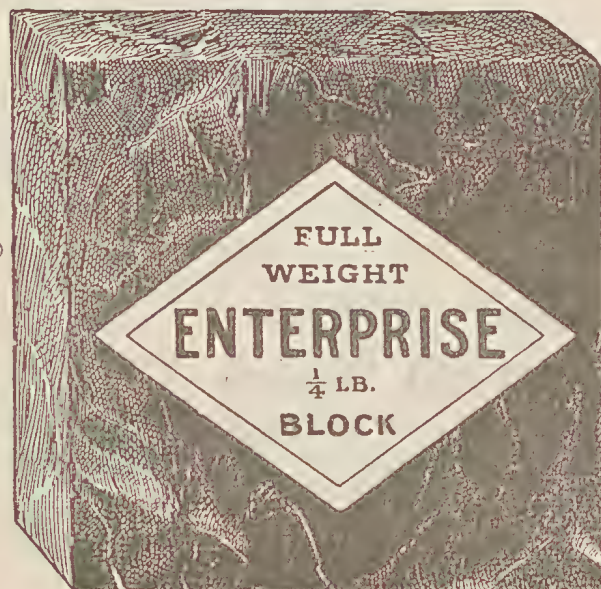
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Fresh Fruit and Vegetables packed and forwarded to all parts of the States at lowest rates for cash. A trial solicited.



THE CAPE TULIP—*Homeria Collina*,

A poisonous weed found growing in our Park Lands. For article on same see our January issue.

THE DAIRY.

Another Aspect of the Milk Question.

Dairying for best results is a problem with many phases. Let us look at the consumers' end of the milk supply (says Dr. E. M. Santee in the 'American Agriculturist.') Why will not the consumers of milk awake to the fact that if it is

wrong for the dairyman to allow the dust of the milking shed to get into the milk it is worse for them to allow the dust of the house or of the streets to get into it. They should also know that it is just as necessary for them to sterilise their utensils, as it is for the dairymen to thus treat his; and if it is essential for the dairyman to cool the milk for the short time that it is in his keeping, it is equally necessary that it should be thus treated during the long time that it is in the hands of the consumer.

How many consumers will take a house fly from their milk and then use it as the fly had never been in it? And yet how

do they know that this same fly had not come from a feast off some filth in the back yard. If that were the case it is probable that the milk from which the fly was taken constituted the first foot bath he has taken since the feast. Many more sources of contamination in the home might be mentioned that daily pass unnoticed, while the 'gunning' for the dairyman goes on.

I do not deprecate the effort to educate the farmer as to his duty; he needs it, but while doing it do not lose sight of the fact that the consumer needs it is well as the farmer.

Antiseptics for the Baby.

We can sterilise his bottles, we can boil his little mug;
We can bake his flannel bandages and disinfect the rug
That covers him when he partakes of medicated air;
But there's one impossibility that leaves us in despair—
And a not unjustifiable alarm, you will allow—
To wit, we fear 'twould never do to sterilise the cow!

We are careful of his hours, we are thoughtful of his toys;
We are mindful of his sorrows, and judicious of his joys;
We are prayerfully considerate of needful discipline,
Of our little 'Mother Handbook and the precepts writ therein;
And we strive to render sterile all designed for mouth or tum,
But one frightful danger menaces—we cannot boil his thumb.

A Story of Two Cows.

At the Illinois Agricultural Experiment Station are two cows, the story of whose work is well worth telling. They were brought up alike on a farm near Elgin, Ill., and obtained their early education in the same herd of 100 cows. Here at the University, with the very same surroundings and equal opportunities, they have drifted far apart in character and their progress has been in opposite directions. It is not a difference of hide, or horns, or temper, it is not that one is wild and the other a pet. It is not a difference of beauty or intelligence, but solely a difference in the way they have worked, a difference in the money they have earned for the owner.

All the milk of these cows has been weighed and tested for years. A record has been kept of every pound of feed consumed by each animal both summer and winter. Each year Gold produced on the average 11,390 lb. of milk containing

405 lb. of butterfat, but during the same time Gilt averaged only 3,830 lb. of milk with 138 lb. of butterfat. These cows were both cared for in the same way; they were given the same kinds of feed, and allowed to eat all they wanted. Gold ate one-half more than gilt, but produced nearly three times as much milk.

Equal amounts of feed made in the one case 188 lb. of butterfat, and in the other 100 lb. The one cow produced nearly twice as much as the other from exactly the same feed in kind and amount.

Counting the butterfat at 23 cents per lb., and taking out the exact cost of feed in each cow, the one cow brought in a profit of £6. 18s., while the other lacked £1. 2s. of paying her board at market prices of feed each year.

This comparison, exact and complete for three years, and including the record of both milk and feed, means a great deal more than a single year's comparison or one in which it is necessary to introduce an estimate.

It would be very gratifying, indeed, if it could be truthfully said that these two records are extreme and exceptional, therefore do not stand for any general condition of the dairy business in Illinois. But the very opposite is true. These two cows represent a large part of the dairy cattle of the State.

—"Live Stock World."

White Scour in Calves.

A correspondent (Mr. W. H. Chesterfield) writes.—"Having often noticed inquiries in various papers for remedies for White Scour in Calves, perhaps a method of treatment I have followed may be successfully adopted by others. With us the egg cure was the most effective of all we tried. Sometimes the calves would be so bad that they could only lie on their side and pant.

We would break an egg so that it would pour nicely, and slowly empty it down the calf's throat out of a gray boat or anything handy. An egg was given three or four times a day; sometimes it would take, perhaps, 3 dozen to make matters right but eggs are usually plentiful and cheap when scours are prevalent. As soon as the ailment is noticed, reduce the milk allowance by quite half, and when very bad give nothing but eggs, gradually coming back to the milk allowance. Clean, warm and dry quarters are necessary for young calves. I think White Scour is most prevalent during the wet weather in early spring, especially if hot and muggy.

For any looseness of the bowels, we mix, say a pint of lime water in the calf's feed for a day, but with the poddies always give the eggs for curdy and bloody stage. We place the affected animals on a bag out in the sun and persevere with them, and I have seen some very bad cases recover; in fact, we rarely lost one after the treatment described."

Victorian 'Journal of Agriculture.'

News and Notes.

Keep the separator clean by washing after each separating.

Have all pails, crooks, cans, and dairy utensils scalded and clean.

Never abuse calves, but make pets of them; let them have confidence in you.

Have a wire screen for each crook so as to 'air all the cream' and keep out flies and insects.

Train the little calves properly, and you will have a herd that will be a source of satisfaction and revenue to you.

Don't allow your dog near the cows if you would get good results from them, and, above all, treat them kindly.

Buying cows and selling them as fast as they cease giving milk never built up a herd of high-producing dairy cows.

If a bad bull be used, all the progeny of a good set of cows are damaged, and years of work are rendered nugatory.

Little calves are like children. Early learned habits are remembered, and if you spoil your heifer you will have a spoiled cow.

The thoroughness of separation depends very largely on the rate of speed of the bowl. The higher the speed the more thorough the separation.

It is difficult to make the farmer who sells inferior milk or bad cream, or keeps his yards and dairy in a dirty condition, see himself as others see him.

In the milk production the development of the udder is largely influenced by judicious feeding, as well as the selection of the offspring of the largest producers.

The cost of maintenance of the dairy cow is a debatable question. Much depends on whether or not a man wants to keep a cow for the benefit of his health, or whether he keeps her for a profit.

Saaen cheese is made in Switzerland from cow's milk. It is the custom to make a saanen cheese at the birth of a child, and eat it at the burial feast, or even at the burial feast of a son of the child for whom it is made.

The calf from the moment of its birth should be kept in a thrifty, growing condition. Letting an animal down is a great and permanent loss. It is something lost for ever, that no amount of after care or feeding can regain.

Never go into the dairy business if you do not enjoy every part of the work, from providing for and keeping the cows to caring for and marketing the product. If there is any detail distasteful, you will neglect it, and a profit-leak will be sprung in that detail that will rob you of the greater part, if not all, of your profit.

Always in Season.

"Boshter" Beer,

A Temperance Tonic, brewed from the finest hops grown, matured in our cellars. A **SPLENDID TABLE or SUPPER BEER** Cased and sent all over the State. Awarded Two First Prizes, Adelaide. First Prize and Silver Medal, Sydney.

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ANGAS ST., ADELAIDE.
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No. 10 ARCADE, Adelaide.

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Watches Cleaned from 2s. 6d.

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A. H. FRISBY,

❖ Ladies' - and - Gentlemen's - Tailor, ❖

GAWLER PLACE,

Late of Bond Street, London, also Western Australia, and late Head Cutter C. J. Lane & Co.,
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Only the Very Latest and perior Quality of Materials stocked.

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Note this! Terms in all cases can be arranged

FIRLE, 3 miles from City—9 acres, 6 rooms, oranges and paddocks, £1,150. A great bargain.

By HYDE PARK ROAD, and Penny Section—Detached House, 4 rooms, bath, verandahs, £250. Any terms almost, £20 deposit, 12s. 6d. weekly, principal and interest at 5 per cent.

FIRLE—2½ acres, lovely orangery full bearing, splendid house 8 rooms, etc., stables, pigstye. £1,375.

CITY, close Hanson Street—Detached stone house, 4 rooms, etc. £315.

CITY—Investment, £75 per annum for £1,200. Building could be put there for £1,500 and land given in for nothing.

CROYDON—3 acres close station, rising neighborhood. £150.

NORTH UNLEY—Residence, 8 rooms, bath, pantry, cellarette. Enclosed area, lavatory, stables, trapshed, 1-16th acre. Only 1-8th mile walk G.P.O., close penny section. £890.

CROYDON, close Station—Superb free-stone Villa, 6 rooms, every modern convenience, 50 x 150. £665.

CITY, South Terrace—Well built Villa 9 rooms, every convenience, large block ground, stables, motor house, concert hall, man's room, etc. Only £1,680.

PORT ADELAIDE—3 shops and 1 room each, brick, almost new, £650. Rents 33s. weekly, rates only £8 yearly. Pays well.

CITY, East Part—2 cottages, 3 rooms, verandahs, £400; rents, 14s. 6d. weekly.

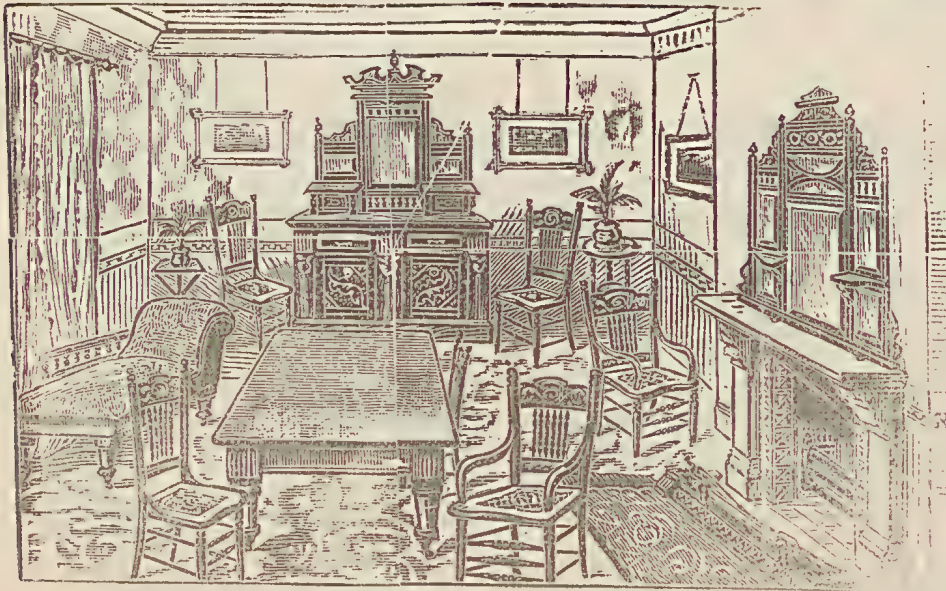
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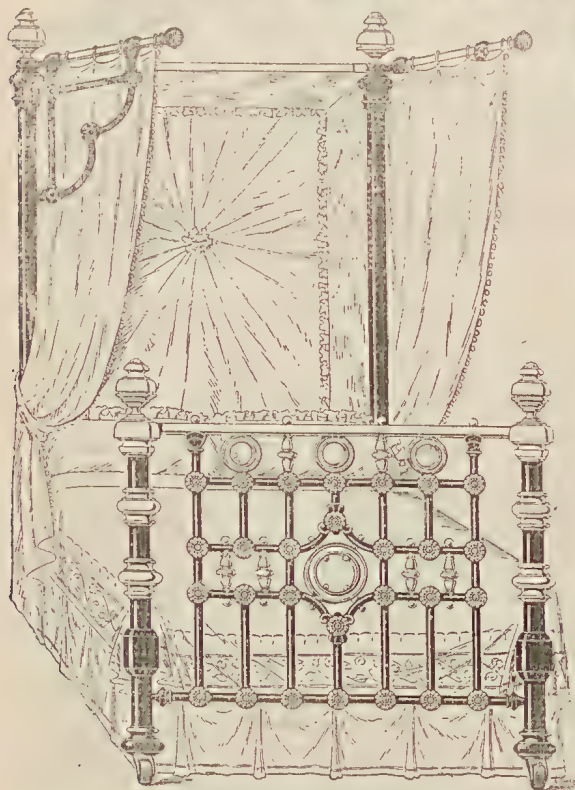


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consisting of the following:—

- 1 Sideboard, with 3 bevelled mirror
- 4 High-backed Chairs,
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- 1 Couch and Cushions,
- 1 Bamboo Table,
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Full size PARISIAN BEDSTEAD, as shown, 1½-inch pillars, Nickel or Brass Mounted, £3 10s.

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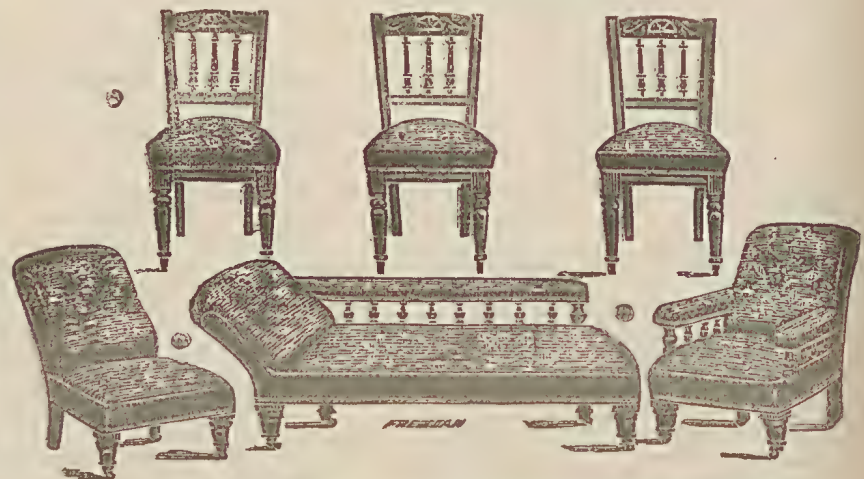
The most perfect reproducing machine ever placed on the market for so low a price. Uses the ordinary standard size gold moulded records.

The SILENT Motor is simple, yet strong, the spring itself being of finest quality tempered steel. The governor, with latest pattern regulator, has complete control of the speed, ensuring a reproduction PERFECTLY IN TIME.

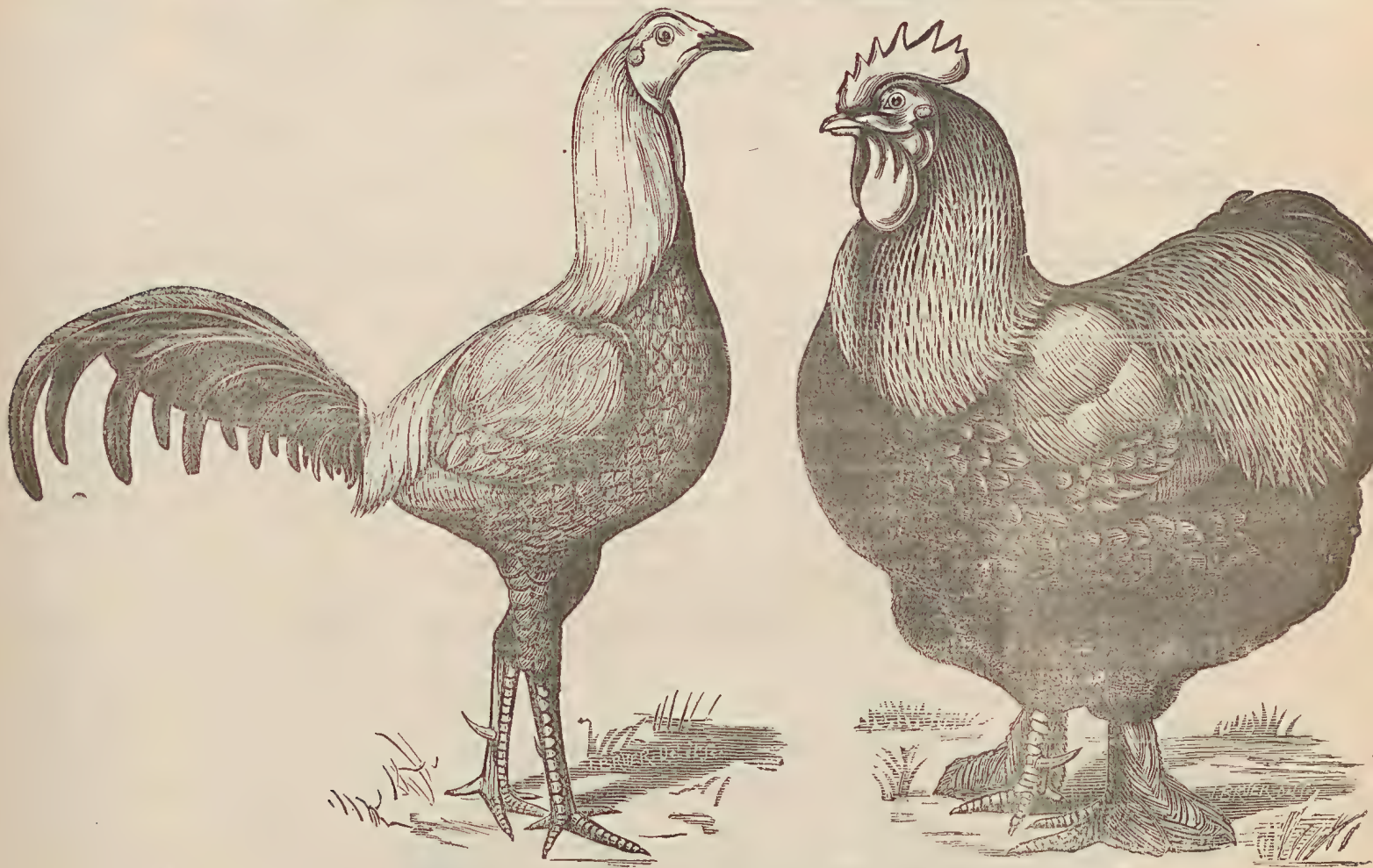
The nickel-plated Reproducer is fitted with a superior quality mica diaphragm, the same as used on all high class phonographs.

The nickel-plated horn is of new design, with flaring bell, greatly improving the tone. It is fitted with safety support, avoiding damage to Reproducer through falling off record.

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6-piece DRAWING ROOM SUITE, as shown, beautifully upholstered, £4 15s. and £5 15s.



PRIZE-TAKERS AT A RECENT SHOW.

❧ The Poultry Yard. ❧

Diseases of Fowls.

G. BRAGSHAW, in the 'Agricultural Gazette of N.S.W.'

—Diphtheria.—

(Continued from last issue.)

The following article on this disease was lately contributed by an English authority to a London poultry journal, and demonstrates the danger of an outbreak of diphtheria, and was prompted by a discovery made by Dr. Robinson, the Medical Health Officer of East Kent. His attention was drawn to an outbreak of fever amongst the school children in Elham. On investigating he found on the premises some fowls which had diphtheric throats, and that the germs were

conveyed to the children by means of the play-ground dust, and caused the fever, the origin of which had baffled the authorities. A cat which had slept in one of the hen's nests also communicated the disease to a child:—

I am not at all surprised to read of the communication of diphtheria from fowls to children. The wonder is that it does not occur more frequently, and doubtless many cases that would be traceable are never suspected of having originated in the poultry. One of the means of conveyance mentioned in the paragraph is open to question, viz., the playground dust—a necessarily dry product—and it can be taken to heart by keepers of fowls, that ordinary dryness (as we commonly understand things being dry) is a destroyer of the germs of this disease. Then the cat seems to have been the medium of conveying the infection in one case, and though my experience of cats is rather limited—being obtained chiefly from their

garden proclivities—I am inclined to agree with Mr. Aflalo, the naturalist, who, in commenting on this transference of disease, hits very hard at 'the harmless and unnecessary house cat' as a go-between for infectious diseases.

We have to concern ourselves with the poultry aspect, and, unfortunately, it is too little recognised among the generality of poultry-keepers what danger there is surrounding an outbreak of virulent diphtheria among their birds. I always insisted that, directly an attack of this occurs, the utmost caution is required, for one central instance has the gravest possibilities among all the birds of the neighbourhood, and, as now shown, may be also a menace to human life. The safest and cheapest remedy is to isolate any mopy bird, and, at the least confirmation of suspicious throat, to kill, and burn the body right away. Burying in quicklime not less than 3 feet deep is good, but not so final as burning; then to set the house sanitarily in good order.

Commonly with cottage and farm poultry—and it is here that most diphtheric cases occur—the procedure is to bring the moping, dejected patient into the kitchen, and put it in an open basket on the fire-

hearth, to become an object for compassion and surreptitious fondling by the children of the family. A few days later one of the youngsters may be down with diphtheria, and the doctor, not knowing there is a decomposing body of a diseased chicken on the adjacent dunghill or ashpit, ascribes the cause to some other quarter; and as the parents are unaware of what the bird died of, and that it was 'catching' the true origin of the child's illness is never traced.

When it is remembered that fowls are scavengers by nature, and if the opportunities occur will feed largely on garbage acquired in questionable places, and drink of the filthiest puddle, it is not to be wondered at that in some cases the combination of foul food and water with foul roosting places sets up this loathsome disorder. Doubtless the time will arrive, and will be welcomed, when fowl diphtheria and fowl diseases will be made notifiable diseases under the Diseases of Animals Acts, for they are apt to be quite as devastating among poultry as, say, swine fever among pigs; and much the same restrictions should be brought to bear upon their keepers. An impost placed by authority on a farm or village where the disease is rife, to prevent the removal of birds for sales or shows, and enforcing the destruction of eggs and infected fowls, would cause the small necessary attention to cleanliness to be observed that the poultry required.

Mention of swine fever calls to mind the great affinity between it and fowl diphtheria, and the question has been raised whether or not they are the same complaint in two different animals.

It will be most frequently found that when one is on a farm the other is prevalent also; but whether this is a coincidence dependent upon the common fact that both originate amid dirty surroundings and filth, or whether the one animal contracts it from the other, is uncertain. One American pathologist, who had been struck by the possibility, of the two diseases being very closely related, says, 'in a report upon 'Fowl Diphtheria,' from the other (i.e., a diphtheritic fowl) were obtained pure cultures of a bacillus not distinguishable from that of swine plague.'

In this country we can hardly hope to progress far into the history of poultry diseases until official aid in the shape of grants for laboratory and experimental work and publishing is given; and anyone conversant with the information at the disposal of poultry-keepers in some other countries, and comparing it with that contained in our meagre and frequently absurd text books on complaints, cannot fail to realise how far we lag behind. I daresay it has come to the knowledge of very few poultry-keepers here that definite experiments have been made in the United States of America by Dr. Veranus Moore, with the object of ascertaining the contagion risk of fowl diphtheria, and as far back as 1895, the proofs were ample. The animals inoculated by virus direct from diphtheritic poultry included rabbits, white mice, grey mice, cavy, and healthy fowls. Taking the results as tabulated, rabbits were very susceptible and died in one to fourteen days; mice in four to six days, cavy

developed the bacillus, and were then chloroformed for examination; healthy fowls seemed to be the least impressible, and in many cases, after showing the disease they recovered.

(To be Continued.)

Poultry for Farm and Orchard.

There is no one in the land better placed to make poultry pay than the farmer or orchardist, says Chanticleer in the 'Australasian'. Yet, as a body, it is probable that such representatives of the soil give less attention to fowls than any other class who are in a position to provide accommodation for poultry. The farmer will, as a rule, see to it that his mares, cows, sheep, or pigs are sent to qualified stud animals, the intention being that some advance should be made in the appearance and profit of the next generation. But the fowls! What farmer would think of paying £1 for a fowl to improve his feathered stock? The same false economy pervades the mind of the ordinary grower of fruit. These classes of producers are, speaking generally, satisfied with what may be termed the 'scalawags' of poultry. That is, the stock kept are bred for no particular quality, and their appearance is no better than their performance, either as egg-layers or producers of reasonably good table fowls. There is no reason why farmers and orchardist and all who have land at their disposal should not keep and maintain flocks of pure-bred birds. The keeping of pure stock is essential to progress when applied to other classes of animals, and why not poultry?

If it is desired to make the egg-raising industry a speciality, then it is imperative that breeds suitable for prolific egg production should be secured; and, further, the egg production must be maintained the whole year through as far as possible.

In looking over the breeds for producing eggs in abundance, a team of white or brown leghorns is necessary. Such fowls are very suitable to this climate, and may be reckoned to produce eggs in fair abundance from July to well on to the Easter following. Poultry of the Wyandotte or Orpington breeds are most in favour for egg production, from about Easter right on to the end of the year, during which time they may be used for hatching purposes two or three times. That tendency towards broodiness may be overcome by shutting them up for a few days and giving ample food. They will then resume egg-laying. These fowls too, are excellent as table poultry, and the surplus, when sold young, meet with favour as table fowl.

Wyandottes or Orpingtons go well with the light breeds such as Leghorns, for the latter are non-sitters, and to those who have no incubator the first two name

breeds supply the place of a machine.

In breeding poultry for egg-production or for market fowls, it is advisable to breed at various parts of the season, so as to have a constant supply of pullets to provide for a continuation of the egg harvest, as well as to take the place of the worn-out hen. Except for breeding stock birds, matured hens of over two seasons are not required, and even then it is considered best in most cases to dispose of hens as soon as possible after they have finished laying and when a little over one year old.

Ducks and poultry intended for the export trade should be hatched before the end of November. After that month, except under special circumstances, poultry-rearing meets with indifferent success the growth of chickens and ducks being retarded by the increased temperature usual at that time of the year. For the export trade it is imperative that the stock should be robust and grow rapidly from the time the bird leaves the shell.

The following information has been received from the Agent-General of Western Australia in reply to the inquiries made on behalf of the Western Australian Dog and Poultry Association respecting the export of poultry from that state to the London market:—'Mr. H. J. Webb, of the Central Markets, London, says:—1. The best time to land large young chickens and ducklings is during March, April, and May, and the first part of June. 2. Chickens should weigh from 2½ lb. to 4 lb., and ducks from 3 lb. to 5 lb. All ducklings should be fat, with white feathers. 3. The best method of packing advised at present is, I think, twelve in a case, packed closely together, but not so close as to get the breast or the bones broken when the cases are nailed down or roughly handled. 4. The price would probably be from 2/ to 4/ each, according to size.'

A Hen's Choice.

A successful local poultry grower was surprised to see a hen shepherding one chicken on the bare floor of an empty stable, and as the chicken was but recently fledged and there was no sign of a nest in the stalls, a further search was made, a bucket on a high place near the roof was investigated, when a beautiful clutch of chicks was discovered at the bottom. The only thing beside in the bottom of the bucket were a few dry peas, which goes to prove, according to the fairy tale of the Princess and the pea, that the hen could not have possibly been thoroughbred.—Jamestown 'Agriculturist.'

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Thus sings Tennyson's "Northern Farmer," hearing the refrain in the hoof-beats of his horse.

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Now Offering—

A 5-Roomed House and 3 Acres, stables, etc. £280 for the freehold
Investment—Cheap House of 5 Rooms, all stone, Rent 10s, Price £175

Farms for Sale.

LOWER NORTH—800 Acres, Well Improved, Plenty Water, 250 acres fallow given in; £5 15s per acre, ex crop
SOUTH—850 Acres, improved; £4 per acre. Also 1,100, Perpetual Lease, improved; £3 15s per acre
PARILLA—650 acres. Well Improved, bore with windmill £2 12s 6d per acre ex crop
COTTON—1,500 Acres, C.P. Lease, unimproved; £650 for lessee's interest

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TREE PLANTING IN GERMANY.

(Translated from the German.)

The accompanying picture shows how the firm of H. Henkel, of Darmstadt (Germany) has for years planted its conifera. It shows how the turf right round the packing is lifted out; then how the packing is secured in zinked wire netting. The wire netting has to be left round the packing; it is then very easy, even after some years, when it is necessary to make more room, to transplant again. The zinked wire netting will resist for years the corroding influence of moisture; it will also give to heavier roots, which might want to break through, without interfering with their growth. This procedure, notwithstanding its simplicity, shows so many advantages that it is worth while trying; every garden artist ought to reckon with it. The nurseryman has so much unpleasantness through bad carriage of packages that it is highly recommended to him to do it in zinked wire netting, as demonstrated.

The Orchard and Nursery.

American Apples in Australia

Since the beginning of December several sample consignments of American apples have been received by Adelaide merchants, the first consisting chiefly of the Winesap, a medium sized, highly-coloured fruit, extremely hard in texture. These apples were packed in cases holding about 30 lb. net, made of pinewood, the ends being about $\frac{3}{4}$ in thick, and the other battens, of which the sides are composed, were only about $\frac{3}{8}$ in. thick, so that the sides bulged distinctly. The fruit, which was wrapped in tissue-paper and packed

in the ordinary way, without any wood wool, or other padding, carried in splendid condition. No evidence of disease or insects could be detected. This apple was superior in flavour to the local-grown Rokewood, which might easily be kept until this time of year. Other consignments consisted of Rome Beauties and Northern Spies, handsome in appearance but totally devoid of flavour, having reached a mealy condition. There was a fairly good demand for the first importations, but the latter shipments have come into conflict with abundance of cherries and other soft fruit, as well as the early-ripening varieties of local

apples. In the eastern States American apples have found a ready market, and this shows the possibilities in connection with storing some of our long-keeping sorts.

S.A. 'Journal of Agriculture.'

Giant Apples.

A season never passes without we learn of some giant specimen of horticultural produce. The big gooseberry has always been bracketed with the sea serpent yarns, but this year we have heard very little of either. Giant potatoes have also hidden themselves, as have monster marrows and sunflowers. The business is saved, however, by the appearance of the giant apple. In an Isle of Wight garden a man has picked 25 apples, Peasgood Nonsuch, averaging 19 ounces each, from one tree. The biggest fruit weighed 33 ounces, others went 25 ounces, 24 ounces 23 ounces. Fifty others averaged 16 ounces each. The total crop was 120 apples. Is this good?

The 'American Florists Exchange.'

Artificial Clouds to Protect Vines from Frost.

How the French grape-growers protect their vineyards from frost by producing artificial clouds is described by Consul Murphy, of Bordeaux; The process, the invention of Edouard Lestout, of Bordeaux, consists of filling small wooden boxes, open at top, with an inflammable composition consisting of a mixture of equal parts of resinous with earthly matters (clay, terra alba and the like,) reduced to fine powder and pressed into a compact mass.

In the centre a wick extends through the compound and serves to kindle it. The wick, however, may be dispensed with and the composition ignited by pouring a few drops of alcohol, petroleum or other inflammable oil over the mass and applying a match. These boxes, about eight inches long by six wide, made of pine wood ordinarily, are placed in line, about 30 feet apart, around certain areas.

'So far as the grapevines are concerned the most dangerous period of the year is in April, when the young shoots are showing some vigour and juices running freely. Then a slight frost may mean disaster unless the plants are protected in some way. There is but little danger when a dark or cloudy morning follows a cold night. The trouble comes when the first rays of the morning sun strike the almost frozen and unprotected plant. By the Lestout process a dense cloud of smoke is produced, hanging over the vineyard long enough to protect the plants from the sun's rays and give them a chance to recuperate from the dangerous effects of the frost.

'The composition in the boxes to windward only is ignited, the thick, black heavy smoke hanging over the field forming a shield against the sun's rays. The inventor declares also that his process may be used for masking the movements of an army, hiding the erection of field works; also as a rain producer, and even for driving of grasshoppers and locusts.'

Cape of Good Hope Agricultural Journal.

Export of Fruit.

'The Federal Commerce Act has now been in operation for two exporting seasons, and, although it has been blamed for many faults, its provisions make for honesty,' writes the Chief Inspector of Fruit in his annual report. It cannot however, be claimed that its operations have improved the quality or standard of our exports in fresh fruits, inasmuch as it has not prevented the exportation of inferior produce. It is obvious that in the run of years the branding of the cases with a true description of their contents must eliminate from this trade the packers of inferior goods; but in the meantime, owing to trade practices which prevail in the disposal of this produce, the whole market for Australian fruit must be depreciated by the presence of even a limited proportion of the inferior article. There is a danger, also, in these days of widespread knowledge, that other alert competitors from similar climatic zones to that which we occupy may, owing to our defects, obtain such a secure footing

in markets we have made that dislodgment may mean a long and costly process, even if it be at all possible to recover ground lost through our own supine actions. However much such restrictions may appear to trench upon the liberty of the individual trader, the writer has personally arrived at the opinion that no remedy is practicable short of legislation which shall prevent that ever-recurring minority of foolish or careless exporters from sending away goods which, whilst injuring themselves directly and that severely, must also act prejudicially towards their country's commercial welfare.'

—S.A. 'Journal of Ariculture.'

Interesting Notes.

Pears are of Egyptian origin.

The citron came from Greece.

The chestnut hailed from Italy.

Tobacco is a native of Virginia.

The mulberry tree originated in Persia.

The horse-chestnut is a native of Tibet.

Walnuts and peaches came from Persia.

Do not omit to thin out your fruit where the clusters are too abundant.

The largest orchards in the world are at Werden, near Berlin. They extend without a break for about 13,000 acres. They yield 48,000,000 lb. of apples and pears every year.

How old can an apple tree grow? A few of the trees planted by Sconondoah, the Onondaga chief, in 1791, and now considerably more than 100 years old, still bear an abundance of fruit. The wood is in good condition, notwithstanding many years of neglect.

M. Sanzean de Puybernean, a French physician, has made the discovery that the leaves of the common prickly pear, if chopped up and thrown into water, will prevent mosquitoes breeding in the water for weeks or months. The resinous mulcilage of the leaves floats on the water surface, and chokes the breathing tubes of the mosquito. Further, in stagnant, foetid water the prickly pear juice has the property of absorbing the gases of decomposition.

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THE FEEDING OF ANIMALS, 3rd ed.,
1905, by W. H. Jordan. 6/; posted 6/5.
PRACTICAL GARDEN BOOK, 4th ed.,
1904, by C. E. Hunn and L. H. Bailey.
4/; posted 4/4.

Works by L. H. Bailey.

Principles of Vegetable Gardening, 5th ed.
1906. 6/; posted 6/8.
Principles of Fruit Growing, 9th ed., 1906.
6/; posted 6/7.
Principles of Agriculture. 10th ed., 1906.
8/; posted 8/11.
Garden Making, 11th ed., 1907. 5/; posted,
5/5.
Horticulturists' Rule Book, new and
revised ed., 1907. 3/6; posted 3/10.
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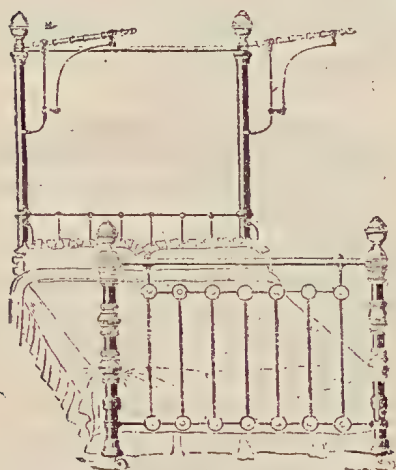
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CASH OR TERMS.

BEE = CULTURE.

Advice to Beginners.

By Isaac Hopkins, Apiarian, in Bulletin
18 of N.Z. Department of Agriculture.

1. INTRODUCTORY.

(Continued from previous issue).

—Cadetship.—

Where it can be managed, the very best course for a young person intending to adopt beekeeping as a business is to go as a cadet for a season with some successful bee-farmer, beginning the season in September, when the bees are being prepared for the first of the honey-flow, and continuing till the honey has been prepared for market in the following autumn. Any young person with intelligence and application should be able to gain such a practical knowledge of the work as would enable him or her to start, confident of avoiding the mistakes usual in all new undertakings. I cannot speak too strongly of the value of such a course of training. I have already been able to practically carry out this system with excellent results to both parties, and I hope before long to bring it largely into practice.

—The Honey to Raise.—

We have different grades of honey in New Zealand, most of it of a superior quality; but undoubtedly the best from a consumer's point of view, and for marketing purposes, is that gathered from white clover. Much of our bush honey is very fine, and preferred by some for its stronger flavour but what the bee-farmer must consider is the most saleable and profitable to produce. The answer to that unquestionably is, 'Clover honey.' It is true that the output of an apiary in a purely clover district is likely to fall below that of one in a mixed flora or bush district, but the difference in quantity will be more than made up by the better prices obtained. I therefore recommend the raising of white-clover honey as being the best in every respect.

—Profits in Beekeeping.—

It is but reasonable that the prospective bee-farmer should want to know the probable profits attached to the business, consequently I am frequently asked the question. I realise that it is necessary to be very cautious in replying, and to guard against a wrong impression, which might easily lead to disappointment and loss. All industries require the combination of three elements—capital, labour, and skill—and, although beefarming cannot

be carried on without the aid of the first two, it mainly depends upon the skill of the apiarist what the profits will be. It would be easy for me to show some surprising results that have been reached in New Zealand, but it would be dangerous to quote these as a measure of success or failure in all cases. As an estimate however, I may state that from a well-conducted apiary, in an average good district, the net profits per colony of bees should reach from 17s. to £1 per annum through a number of successive seasons, and this estimate I consider well within the mark.

It is a rule, without exception, in beekeeping that with largely increased operations, and the establishment of out-apiaries, the average profit per hive diminishes, though the aggregate profits may be very much larger. No doubt this may be accounted for by the inability of the apiarist to give each individual colony so large a share of attention.

—Beekeeping Combined with Other Pursuits—

The old adage which warns us against putting all our eggs into one basket is especially relevant to beekeeping. I always recommend, when asked, the combining of some other occupation with bee-culture for the first few years, so that there may be another source of income in the event of a bad season or two. If in after-years the beekeeper finds it more profitable to devote the whole of his time to bee-farming, well and good, but when in a comparatively small way the slack time between the seasons affords ample time for doing other work. Fruit-growing or poultry-farming, or both, work well with beekeeping. In my first taking up bee-culture, over thirty years ago, I combined fruit-growing with it, and found them work together very well indeed. I am frequently asked about dairying and beefarming; I cannot recommend this combination unless the dairying is on a very small scale indeed, for I think the wearing life of a dairyman is against his being able to pay close attention to anything else.

(To be continued)

Action of Bees upon Fruit Blossoms.

Much interesting information as to the action of bees upon fruit blossoms has been collected in what has now become a standard work of reference for apiarists—Root's 'A.B.C. of Beekeeping.' According to evidence collected by a committee of the Canadian House of Assembly, the offices performed by bees in the fertilisation of fruit bloom are indispensable. If the weather should be wet and cold so that they cannot perform this function, very little fruit is gathered later in the season.

It was noticed by one observer, in an apple orchard exposed to both north and south winds, that in a season when, for several days, strong southerly winds prevailed, so that the bees could not work on the exposed side of the rows, very little fruit was subsequently gathered from the branches on that side, while those on the other were well loaded. In greenhouses, where early cucumbers are grown, it is always necessary to have one or two hives of bees to fertilise the flowers. Many experiments have been made to ascertain the result of preventing bees and other insects from having access to fruit trees when they are blooming, as by attempting to grow peaches under glass, and covering pears, apples, and plums with netting or cheesecloth in such a way that insects were excluded. In one instance, Professor Cook, of the Michigan Agricultural College found that of the covered blossoms of some apples only 2 per cent. developed fruit, while 20 per cent. of the uncovered blossoms matured. With pears none of the covered blossoms developed, and with cherries 3 per cent. of the covered blossoms and 40 per cent. of the uncovered developed. Many varieties of pears planted at a distance from others would be utterly barren but for the bees, while they cannot be profitably grown unless others from which they can be cross-fertilised are placed near them. Unfortunately, the spraying of trees when in blossom is very destructive of bees. It is also injurious to the flowers themselves, the poison ordinarily used proving harmful to the pollen, and hurting the delicate organs of the flowers. Indeed, in a number of the states of the American union—where the apiarists must be a much more important and self-assertive body of men than they are with us—it is a misdemeanour to spray during blooming time. But every well-informed orchardist is aware that to get the best results spraying should be deferred until the petals have commenced to fall.

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The Young Folks.

NATURE STUDIES.

BATS.

One of the strangest pets of which I ever heard belonged to a friend of mine. It was a Long-eared Bat, which had been startled by the gardener's boy from her sleep in the ivy, and caught by him as she darted out of her hiding-place into the glare of day.

The gardener's boy—his name was Jim, and he had the most curious collection of small animals you could imagine in the loft in which he slept—put her into a spacious cage that had once been inhabited by white rats, and proceeded to tame her.

I have no idea how he did it, but before a month was over she would come at his call and eat flies out of his hand. During the day she slept, hanging on to one of the cage bars, head downwards, by her toes, of which she had five on each foot, each armed with sharp, hooked claws. Her wonderful wings were folded close about her, and though sometimes she would stir slightly if Jim addressed her, she never fully woke until evening came.

Jim grew too old to be 'gardener's boy' any longer, and was promoted to a better post near a large town. A few of his pets he took with him, but most of them were distributed in the village he was leaving. On his last morning he came up to say good-bye to my friend, and, very red and shamefaced, asked her if she would be 'so kind as to accept the present of his bat, Jennie.'

If she had not been afraid of hurting his feelings she would have refused, but his anxious face made that impossible, and Jennie and her cage were installed in a little sitting-room under the eaves. (We found out afterwards that he had offered her in turn to all his companions, but that each had refused to take charge of 'such a queer creature.')

It was some time before Jennie would have anything to say to her new friend, and we used to fancy there was a baleful look in her bright eyes as she gazed at us when we fed her, as though she thought we had spirited Jim away. After a while she grew quite friendly, and would make the peculiar little sound of recognition she had always kept for Jim. Every evening the door of her cage was opened, and she would fly gaily about the room, dodging in and out among the chairs and tables and chattering to herself. When it was time to feed her would hang herself on to the edge of my bookcase, opening and shutting her mouth like some mechanical toy. Spiders and beetles were her favorite dainties, and it used to make us feel quite ill to hear her scrunch them

up. Nothing would persuade her to eat meat, though some bats will, and whenever we offered her anything she did not care for she would spit and shake her head, for all the world like a naughty child.

My friend had had her for nearly a year when she escaped one night through the open window. We thought we had seen the last of her, for we knew there was an owl's nest in the ivy that covered the old clock tower, and owls are deadly enemies to bats. But the window was left open every evening, and we hoped against hope that she would return. On the third evening something flew in suddenly and settled on my friend's shoulder; it was Jennie, who had fixed her claws in the laces at her throat and was hanging very still as though exhausted.

Presently she flew to the edge of the bookcase, and we fed her as usual, not noticing at first that anything was the matter. When the lamp came in, however, we saw what had happened—the wicked old owl had torn her eyes out, and though poor Jennie had escaped she was quite blind.

The extraordinary thing was that it seemed to make no difference to her so far as flight was concerned. She darted about the room as usual, moving round the vases and frames on shelves and mantelpiece with great adroitness, never once displacing them. If her mistress called her she would fly to her at once, avoiding anything in her way as if she could see as well as ever.

And now I am going to tell you why, just now, I said her wings were 'wonderful.' Instead of being covered with feathers, as birds' are, they are composed of a thin and widely expanded sheet of membrane stretched over and between their curious limbs, which support them in much the same way that the ribs of an umbrella support the silk that covers it. The membrane is supplied—as well as the membranous tissues of the ears and nose—with the most exquisitely sensitive nerves which gave to bats their marvellous sense of touch. In some way we cannot understand, bats 'feel' an obstacle before they reach it; our poor blind Jennie would pass through narrow spaces, without touching either side, as cleverly as if she still possessed her sight, and we never knew her to mistake a distance.

The end of Jennie was very sad. For a few weeks after her terrible adventure she stayed at home, but when the summer evenings came the green woods called her, and she left us again. We found her body outside the old clock tower—there had been no escape from the owl this time.

Bats are nocturnal creatures, and are found in almost every corner of the globe, though they are most plentiful in warm climates. They are not all so harmless as Long-eared or Common Bats, and in South America there is a horrible Vampire Bat which it makes one's flesh

creep to hear of. He has keen, sharp, teeth, which quickly pierce the skin of his victim, and fixes himself upon it silently, sucking its life blood from it while it sleeps. Mr Darwin tells us how, when bivouacking late one evening near Coquimbo, in Chili, his servant noticed that his horse was very restive, and found a Vampire upon its back. Horses and mules and cattle are sometimes bitten upon the ear, and so much blood is taken from them that they often die from exhaustion; fowls are attacked on their crests and wattles, and die from gangrene of the wound.

But there is worse to come. Unless the natives of Maranham (amongst other places) are very careful in covering themselves up at night, these Vampires fasten on their feet while they are sound in slumber. Their bite is very small—the wound is scarcely larger than the head of a pin—but unless the sleeper wakes it will go very badly with him. Europeans, too, are sometimes bitten, and a Captain Stedman narrowly escaped with his life.

If there were time there is much that I should like to tell you about the Horse-Shoe Bats and the curious Kalongs. These latter are inhabitants of Java; the upper part of their necks is smoky red, the rest of their fur a dead, dull black. The damage they do amongst fruit and cocoanut trees is enormous, and many are the contrivances used by the native princes and English colonists to protect their harvests. During the daytime the Kalongs hang on the branches of trees in hundreds, and if disturbed, utter piercing shrieks that are most alarming.

—Our Jabberwock.

Conundrums.

When does a man suffer from water on the brain?

When he gets a notion (an ocean) into his head.

When does the human tongue resemble a town in China?

When it's Pekin (speaking)

Why is a beehive like a spectator?

Because it's a beeholder.

When is butter like Irish children?

When it's in the shape of little pats.

When is a man most wooden?

When he's a great deal bored.

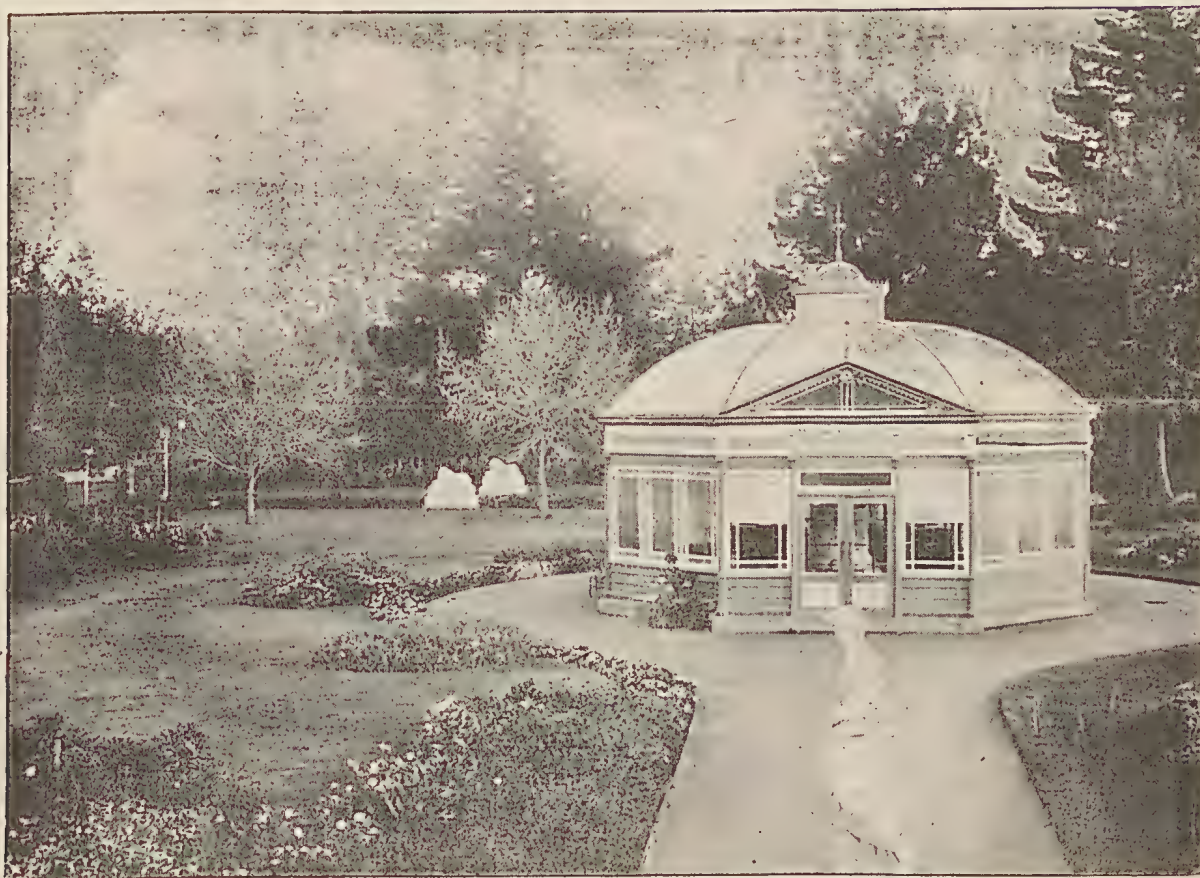
Why is the grass you walk on older than yourself?

Because it is pasturage.

'Now,' said a teacher who was giving a lesson in grammar, 'can anyone give me a word ending with 'ous,' meaning 'full of,' as in 'dangerous'—'full of danger'—and 'hazardous'—'full of hazard'?'

There was silence in the class for a moment. Then a boy put out his hand.

'Please, sir, 'pious'—'full of pie.'



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DID YOU KNOW THAT—

Italy has 400 princes and 4500 dukes.

One mile of railway takes 270 tons of rails.

The average life of a London house is, at the outside, two centuries.

India's revenue is now £49,000,000, and exceeds expenditure by nearly £2,000,000.

France grows 1,600,000 tons of apples yearly, and makes 240 million gallons of cider.

The cost of the present Government inspection of Chicago tinned meat is no less than £600,000 a year.

In Turin a paper used to appear nine years ago which was printed in luminous ink, so that it could be read in the dark.

New York has thirty-nine suburbs in New Jersey, and five in New York State, with a combined population of over 1,000,000.

Canada's trade with the United States is now nearly three times greater than her trade with the mother country.

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WIT AND HUMOR.

What is done cannot be undone, especially if it is a hard-boiled egg.

When a cat gives an entertainment from the top of a wall, it isn't the cat we object to; it's the waul.

Teacher: 'Now, Johnny, what was Washington's farewell address?'
Johnny: 'Heaven.'

'I have no heart to sing,' she screeched.
Her hearers, one and all,
Despairing, sighed, and then replied,
'But you possess the gall.'

Colonel (to his servant): 'Robert, has anybody been smoking my cigars except yourself?'
Servant: 'Yes, sir—you.'

'We,' said an urchin, 'have got a chicken at home that laid a duck's egg.'
'Pooh! That's nothing,' said his mate.
'I've got an uncle that laid a foundation-stone.'

Miss Passe: 'I wonder what he meant when he said my teeth were like stars?'

Her Friend: 'I think I see his point. Don't your teeth come out at night?'

'She did a very foolish thing when she married.'

'Why, he was rich, wasn't he?'

'Yes—he was the foolish thing.'

'Mammy, dear,' said little Matty, 'what is a stepmother?'

'Why, Matty,' replied his mother, 'were I to die, and your dad should marry again, the lady would be a stepmother.'

'Oh, I see,' remarked Matty. 'You'd step out and she'd step in.'

A widow and her little son were walking in the park, with one other—who seemed likely in the near future to be of the family.

The boy sat down on the grass and refused to budge, though his mother's escort coaxed hard, and the lady also entreated.

'He's afraid I'm going to marry again,' said the young widow.

'I don't take you,' the gentleman said. 'What's the connection of ideas?'

'He refuses to take a step farther. See? But he had to.'

Says Mr. E.E.E. in 'Scraps,' I was walking along a country road one day, when I saw a man digging in a garden. I approached him, and the following conversation ensued:

'Ah! So you're a horticulturist, eh?'

'A haughty culturist? No, sir; I'm in a very humble way.'

'But don't you horticult?'

'I dig, though I don't like it.'

'I see. You're infradig so to speak?'

'I'm in for something.'

'What do you raise?'

'Sardine tins and Cain.'

'The soil isn't fruitful, then?'

'No; it's I who am the fruit fool.'

'Ever try scarlet runners?'

'Oh, yes; but they walked.'

'H'm! How do you get on with flowers?'

'Only sow-sow.'

'Ha! And no reap. How is that?'

'My neighbour's cat. That's why I'm digging.'

'A flower-bed?'

'No; a purr-slay bed.'

'H'm! Then I gather that you have slain the foo?'

'You do, and that is about the only thing you'll gather in this garden.'

'You appear to have grave business on hand.'

'Yes, grave business.'

'All right. I'll say good-bye.'

'What hoe?'



The Australian Gardener



(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry),
CONTAINS—

Illustrations—

Madame de Graffe Narcissus
Prize Chrysanthemums—
Mrs. J. J. Mitchell, F. J. Taggart
and H. W. Buckbee
Double Anemones
Araucaria Excelsa—Norfolk Island
Pine
White Curled Endive
Covent Garden Market Beet

ANSWERS TO CORRESPONDENTS

EDITORIAL.

Flower Garden—

Notes for the Month
Manure and Weeds
Description of a few Prize Chrysanthemums
Chrysanthemum Centenary

Description of Flowers—

Ageratum, Anemones, Calliopsis
and Candytuft
The Pansy—It's Cultivation
The Vegetable Garden—
Operations for the Month
HOUSEHOLD HINTS.
The Farm—
Stud Marino Ewes
Horses Not Lying Down
Teeswater Sheep
Miscellaneous Items

The Dairy—

Rearing Calves
News and Notes

The Poultry Yard—

Diseases of Fowls
A Poisonous Weed to Poultry

Old Hens

Washing White Leghorns for
Exhibition

The Orchard—

The Apple Crop—Alternation of
Fruiting Seasons
Fumigation of Nursery Stock
Secret of Canning Fruits
To Crystalize Fruits
Interesting Notes

Bee-Culture—

Advice to Beginners—The Hives to
Adopt
How Bees "Buzz"

The Young Folks—

A Pussy Cat's Tale
Conundrums

WIT AND HUMOUR

NOTICES.

ALL COMMUNICATIONS, literary or business, must be addressed to the Managing Editor "Australian Gardener," corner Wyatt and Pirie Streets, Adelaide, and not to any individual member of the staff.

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TO ADVERTISERS.—Particulars of rates will be supplied on application. Alterations of advertisements must be in our hands not later than the 15th of the month.

Answers to Correspondents.

—:O:—

'Scent.'—Freesias may be had in bloom from June to August.

'Wager.'—The Aylesbury duck and drake should both be spotlessly white.

'Mil Dew,' Halifax-street.—Dust your Chrysanthemums with sulphur whilst the dew is on them.

'Chicken.'—It is no doubt Apoplexy, caused by overfeeding, inducing the rupture of a blood vessel in the brain.

'Dairyman.'—The Devon breed of cattle is one of the most ancient of English origin. They are natives of Great Britain.

'N. Orchard,' Uraidla.—Let your young trees make as much wood as they can during the first three or four years and rub off any signs of fruit.

'Enthusiast.'—The boar will be ready for service at six to eight months, though it is better to wait until he is ten or 12 months old. The same remarks apply to the sow.

'A.M.,' North Adelaide.—You omitted your correct name and address, so we are compelled to hold over your complaining letter until you send same—not necessarily for publication, but as a safeguard to us.

'Localite,' Prospect.—Your letter is quite flattering. We are pleased to know that our efforts to provide a reliable guide for amateur gardeners and others is so much appreciated.

'A.R.,' Summertown.—We publish an article in the farm portion of this journal dealing fully with the subject of 'Horses not Lying Down,' and you will doubtless find the information you require therein.

'New Chum,' Paradise.—No; do not leave them on the vines, unless you want them for seed. Cucumbers, French Beans, Melons, and Tomatoes should be looked for every day and gathered, even if not required, for if left on the vines to perfect their seeds the plants will soon cease to be productive, or will form inferior fruit.

'M.M.,' South Terrace.—You are perfectly correct; there is a tomato plant that comes under the definition of Giant Tree Tomato (*Cyphomandra betacea*). It often attains the height of 10 feet, and lives for several seasons. The fruit ripens in July, in this respect being quite different to any other class of Tomato. It is catalogued by Messrs E. & W. Hackett, seedsmen, of Rundle-street. There is also what is styled the New Perennial Tree Tomato, which is claimed to attain a height of 12 to 25 feet, and is said to produce innumerable quantities of bright red egg-shaped fruits of a delicious flavor, somewhat between that of a Cape Gooseberry or Guava.

EDITORIAL.

The electric trams are running in Adelaide. It is the best system in the world. Adelaide lags behind sometimes, but when the Queen City of the South does something it is generally worth doing. She is up to date now in everything, and in a few months the whole tram system will be working. Visitors will come to stay, and wandering through the parks will be quite as enjoyable as any other sight seeing. They are as gay as gay can be. The Cannas are delightfully picturesque in their setting. The parks are roomy, and the great glaring colours most suitable, to open landscape gardening.

* * * * *

The March issue of THE AUSTRALIAN GARDENER is, as usual, full of information for everybody interested in production from the garden or the field. For flowers the early rains will start the diggers going with their little forks and spades in the front garden. In our Description of Flowers may be noticed a reference to Candytuft. It is surprising that this showy white bloomer is not grown more. No flower gives a greater profusion of bloom, and none can be used to better advantage for bordering or setting off clumps of gay colouring.

* * * * *

The Vegetable Notes are most useful. Any handy sort of a man, or woman either, should be able to supply their kitchen with at least half the vegetables required during the year from a very small plot of ground. It is really surprising what a lot of stuff can be produced on a rod of ground with sunshine, water, and manure.

* * * * *

The Orchard articles are also full of interest. Particularly we would call attention to the fumigation of nursery stock, and we would add also the spraying of the same. If the young trees are kept clean and healthy from the beginning orchardists will be saved an immense amount of disheartening labour afterwards. The germs of disease, whether

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animal or vegetable, are carried around from nurseries to orchards with the utmost facility, and all the efforts that are put forward to make the trees grow will help forward the development of the diseases. The overplus of orchard produce is a serious matter to growers. There is far too much waste. At present the position is one of waste to all the stuff that cannot be sent to market or the jam factory. Our articles on canning and cry tallising fruit are interesting and instructive in this connection.

* * * * *

Poultry raisers will find the articles on Diseases in Fowls, Poisonous Weeds, Old Hens, and Preparing White Leghorns for Exhibition.

* * * * *

Sundry other articles go to make up a full and complete number of THE AUSTRALIAN GARDENER for March.

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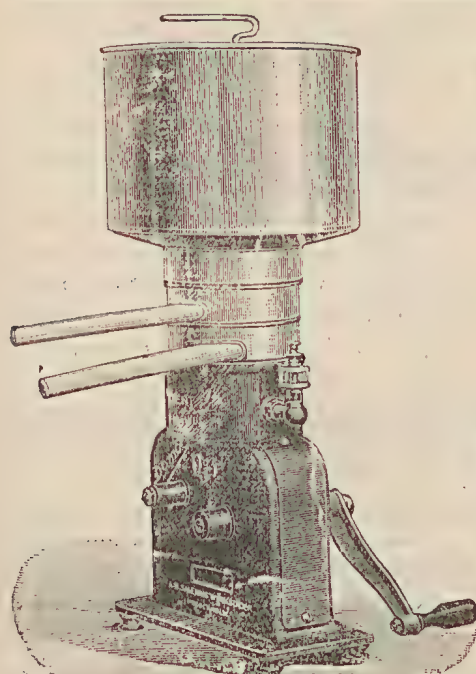
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Flower Garden.

—:o:—

Notes for the Month.

March is a good time of the year to plant out many kinds of bulbs, and no one should be without daffodils, crocuses, snowdrops, sparaxis, ixiads, hyacinths, &c. These may all be planted, and the earlier the better—that is, if the soil has been prepared for them. They can be planted singly, in clumps, or in rows, or in any way which you please or circumstances may require. Daffodils, hyacinths, tulips, crocuses, snowdrops, and snowflakes will come to the greatest perfection in the cool climates in this State, but they will give great satisfaction almost everywhere. After planting, spread a mulch of cow or horse dung over them. The depths for planting should vary with size and variety—the largest from 3 to 4 inches and the smallest about an inch. It would be advisable to have the ground properly drained, for bulbs will not succeed in ground too wet.

All the charming little flowers—daisies



NARCISSUS (Daffodil)—Madame de Graffe.

cowslips, primroses, polyanthuses, pansies, auriculas, and so on—may be planted during the latter part of the month. Violets, too, should not be forgotten, and they, especially the double varieties, come to the greatest perfection in our coolest climates, although the singles succeed fairly well almost anywhere, if there is sufficient moisture for them.

Sow some seeds of ten-week stocks in a bed, or in boxes, for transplanting when the seedlings are large enough to move. The plants will flower in the spring.

All sorts of hardy annuals and perennials may be sown, either in the garden where they are to flower or in boxes, or pots. It will probably be the best way to sow in boxes or pots, and afterwards transplant, because seedlings in the garden whilst very young and tender are liable to injury from insects and other causes.

As numbers of readers of these directions may be new to flower-gardening and the names are not familiar, they are advised to obtain seeds of some or all of the following:—

Angallis grandiflora, or Pimpernel
 Anchusa carpensis, hardy perennial
 Antirrhinum, or Snapdragon of varieties, hardy perennials
 Aquilegia, or Columbine, of various kinds, hardy perennials
 Asperula odorata, or Woodruff, a very old English flower, hardy perennial
 Auriculas of varieties, hardy annual
 Campanula of varieties, hardy perennial
 Candytuft of varieties
 Coreopsis of varieties, hardy annuals
 Carnations of varieties, hardy perennials
 Centaurea of varieties, hardy annuals
 Annual Chrysanthemums of varieties,
 Clarkia of varieties, hardy annuals
 Cosmos of varieties, hardy annuals
 Coreopsis of varieties, especially Grandiflora, hardy biennial
 Dianthus Hedderwigii
 Delphinium, or Larkspur, of varieties
 Digitalis or Foxglove
 Eschscholtzia, hardy perennial of varieties
 Freesia, bulb but easily raised from seed, will flower the first season
 Hedysarum coronarium, French Honey-suckle, hardy perennial

Gaillardia of varieties
 Godetia of varieties, hardy annuals extremely pretty free flowering plants
 Senecio elegans, or Jacobia, hardy annuals
 Everlasting Pea
 Sweet Pea of varieties
 Lobelia of varieties, hardy annuals
 Perennial Lobelia, Cardinalis
 Linum grandiflorum rubrum, nigella hispanica, or Love in a Mist, hardy annual
 Lupins of varieties, hardy annuals
 French and African Marigolds
 Mignonette, hardy annuals
 Nemophila, hardy annual
 Nasturtium of varieties
 Pansies, of varieties, hardy annuals
 Penstemon, of varieties, hardy perennials
 Phlox Drummondii of varieties, some of the prettiest of annuals
 Poppies of varieties, hardy annuals
 Perennial Poppies
 Polyanthus, hardy perennial
 Scabious of varieties, hardy perennial
 Sweet Sultan hardy annual
 Sweet William, and Wallflower.

The seeds should be sown with care on a finely-prepared surface of soil which has been made fine as well as level. Sow very thin and barely cover with soil. Keep moist, but not too damp. When strong enough plant in the garden.

Cuttings of roses, pelargoniums fuchsias, geraniums, verbenas, and many other plants will strike easily this month. Shade well after planting, and keep them moist, but not too damp.

Continue to maintain an attractive appearance in the garden by unremitting attention in the matter of removing dying blooms, seed pods, damaged shoots, and all untidy matter. Beds and borders composed of herbaceous plants and annuals should have regular soakings of water, and the grosser feeding subjects should be frequently given liquid manure. Tie up plants afresh that have broken from their confinement or have outgrown the strength of the original stake. With these little attentions the garden should afford delight for another two months. It is fatal to procrastinate in the matter of noting the colors and especial features of the various

Dahlias, Cannas, and other decorative subjects. Each should be clearly defined and labelled before they go out of bloom and are assigned their winter quarters, so that next spring there will be no mistakes made in disposing of them, and they can be grouped to the best possible advantage. If one's collection is not sufficiently large and varied now is the best time to make a fresh selection at some nursery garden. It is much more satisfactory to have the order booked now than to leave it until the planting season arrives, when one has to rely on the florists' catalogued description, which, though helpful, is not quite all that we desire. The most important thing is to see a plant growing before we can judge of its suitability to our own taste and surroundings. In the case of Dahlias some varieties that justify glowing descriptions in the catalogues and are conspicuously handsome features of the flower shows are quite ineffective in the garden, because of their imperfect habit and an irritating disposition to droop and conceal their blooms. Where the collection must necessarily be small it is advisable to exclude the dusky shades, and give preference to the bright showy varieties of Dahlias.

Manure and Weeds.

The question of the vitality of seeds in manure is one that sometimes forms the subject of discussion, and any new experimental evidence is therefore worth consideration.

We learn that Mr. Oswald has been studying the influence exerted on seeds by the processes of fermentation that go on in stored manure, comparing such effects with those produced on the seeds during their passage through the digestive tract of the cattle. His results are of interest, as showing that whilst about 12 or 13 per cent of the seeds of weeds fed to cattle germinated in the manure was at once spread as a top-dressing, only between 2 and 3 per cent. came up if the manure was ploughed into the land, and none, or practically none, showed evidence of vitality if the made had been previously stacked for six months in the yard.—The "Gardeners' Chronicle."

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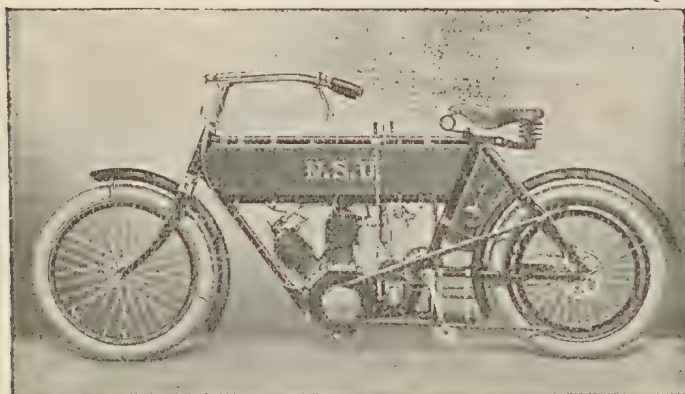
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F. J. TAGGART.

H. W. BUCKBEE.

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H. W. BUCKBEE (Mrs. Trenor L. Park x Nagoya)—An improved Nagoya. A little brighter in colour and more dwarf in growth. A very beautiful yellow. C.S.A. certificate and S. A.F. bronze medal at Chicago.

Chrysanthemum Centenary. FOR

It is just one hundred years ago that a French sailor, living near Marseilles, went up to Paris by diligence, guarding with the utmost care two precious little flower pots in which he had specimens of a strange plant. His name was Pierre Blancard, and on his arrival in Paris, in November, 1808, he obtained an interview with the Empress Josephine, who was devoted to flowers, among other things. Blancard had frequently sailed to China and Japan, and there had been struck by the beauty of the flower which was held in such high esteem in the Far East. He had the greatest difficulty in getting his specimens out of Japan, and in bringing them home safely in the slow sailing vessels of those days; but he succeeded, and managed to grow the plant in his garden at Aubagne, a suburb of Marseilles. The chrysanthemums now flourishes throughout Europe, and is held in as great esteem as it is in the Far East, where it was known certainly as long ago as the ninth century before the Christian era.

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DOUBLE ANEMONES.

Description of Flowers.

May be Sown during this Month.

ANEMONES.

Anemones (tuberous and herbaceous) are always favored by gardeners, whether at the cottage or the mansion. They like a shady moist spot in the garden, with a light, rich, well drained loam. The Bride bears well a pure white flower, Fulgens is a striking scarlet, Pulsatilla a pure white, while Sulphurea is a delicate sulphur tint, and a hundred others are available. Some of the Japanese varieties are pretty as well as peculiar. It would be interesting to know how this plant derived its name from the Latin of Wind Flower.

CALLIOPSIS, or COREOPSIS.

The latter name is derived from the from the appearance of the seed to that

of a bug. This possibly accounts for some æsthetic gardeners preferring the first name. They are treated as annuals or perennials. *Calliopsis bicolors*, *tinctoria*, *Atkinsoni*, and others are true annuals, bearing red and yellow flowers. *Coreopsis grandiflora* is a perennial, bearing large pure yellow flowers on long stems. The colors are limited to yellows, browns, and shades of red. A Jamaica white (*coreopsis alba*) is rare. The plant is one of the grandest of the spring, and its graceful growth and lasting vitality through the severest heat of summer gives it a place to beautify every garden.

CANDYTUFT

(*Iberis*, from Iberia, the early name of

Spain), universally grown in all gardens, is one of the most useful bloomers for bouquets and wreaths. In fact white flowers are amongst the best marketable to the florist for all purposes. *Iberis umbellata* and *I. Gibraltarica* are the two most popularly known varieties. The former grows to an umbrella-shaped truss of bloom, whilst the latter takes a cone shape, some of the spikes growing to six inches in length. Candytuft is one of the most showy and effective annuals for beds, clumps, or borders. If sown moderately thick they present a perfect mass of bloom, which retains its beauty for some considerable time.

AGERATUM.

This hardy perennial is reputed to be one of the favorites of the late Queen of England, and is a most useful plant for groups or for the border. They are in bloom nearly all the year around. The flowers are white, lavender, yellow, and rose colored without intermediate shades, but variegated. The habit of some is a dwarfed growth, and dense enough to make good edging.



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Norfolk Island Pine.

A NEW FODDER PLANT.

Phalaris Commutata.

The Monarch of Grasses.

Thorough Frost-resisting; Stands Feeding or Cutting; Grows best in Winter. Attains a Height of 7 feet. Excellent for all Climates.

Extract from "The Australasian," May 18, 1907.

Phalaris commutata, a grass, which has lately given rise to a good deal of interest, and has been extensively boomed, is a variety which seems to possess many characteristics which should commend themselves to stockraisers, and in appearance is a grass which seems to justify the glowing descriptions generally given of it. If the sample grown by Mr. J. Furphy of Hill End, Moe, represents the usual growth under ordinary conditions, then undoubtedly Phalaris commutata will be a valuable acquisition to our fodder crops. The sheaf of hay shown by him, which he says represents the growth of one root, was a perfect sample of hay—juicy, of good color, and sweet to the smell. It certainly looks a hay that should be relished by all kinds of stock. Phalaris commutata is a native of Italy. It was introduced into Queensland in 1884 by Mr. Harding, the curator of the Toowoomba gardens, being one of many varieties of grasses obtained by him from America. What he says of it appears to have been borne out by all others who have tried the seed. "The seeds" he said, "were sown in drills, and all germinated and made good growth until the first frosts, which killed all except one, Phalaris commutata. Requiring the ground space for other purposes, I removed this grass, and simply dumped into a corner of the nursery taking no particular care of it. Al-

though the ground was very hard, it made tremendous growth in 1 year, germinated where it had fallen, and in twelve months grew into clumps 2ft across and 5ft in height, with nice, soft, succulent blades, and flowering stems. This has been cut two or three times in the year. The roots are fibrous, and the foliage very dense, and a bright green in colour, especially during the winter. In appearance, the leaf is similar to that of P. Canariensis, but the plant is much more productive. Visitors from all parts of the Commonwealth, who were shown this grass, were surprised how it stood the drought. To graziers and dairymen I particularly recommend it, being particularly productive throughout the year. It is easily propagated, and when once started, it will soon produce seed which, if allowed to shed, will germinate freely. The seed is small and glossy. During the '93 drought some roots were in a bag for six weeks, and the only difference it made was that the foliage was slightly yellow, though the plants kept growing all the time. It seems to like all kinds of weather, and from the rapidity of its growth it excels all other grasses I have had anything to do with. What it would be if properly cultivated it is hard to say, but it is a very desirable grass to introduce and distribute. By its own self sowing, it has covered a large amount of space in the nursery."

How to Plant it.

Mr. Furphy, whose experience of the grass corresponds with that given by the Queensland botanist, states that his trials have been made on poor, light soil, and he estimates that if properly attended to and given a light dressing of superphosphate, it would yield 8 tons of dried hay to the acre per annum. These are very big figures, and the grower who got half that return should be well satisfied that he has found a valuable new fodder plant. "I obtained," he said, "a few plants, and transplanted at the end of April, and whilst putting them out in drills 3ft apart and 2ft in the drills by the end of June they had made a growth of 2ft, sending on the shoots, until by the end of the season, as many as 167 seed-stems had been produced by one plant, the height being about an average of 7ft. It was a severe winter, but not a yellow leaf could be seen." He suggests that the seed should be sown in a bed like cabbage-seeds, and when the plants are sufficiently strong, should be transplanted 3ft apart each way. Having only seen the grass in a sheaf, it is difficult to form an opinion of what it would be like for fodder purposes, but there can be no question that for hay it is admirably suited, and if it fulfils half the good things claimed for it by the grower, Australian farmers should be well pleased.

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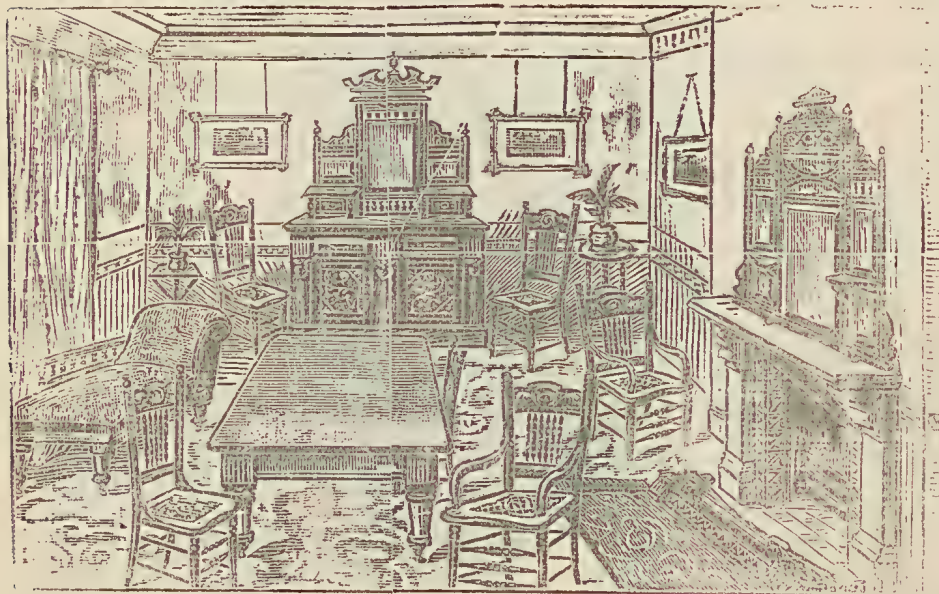
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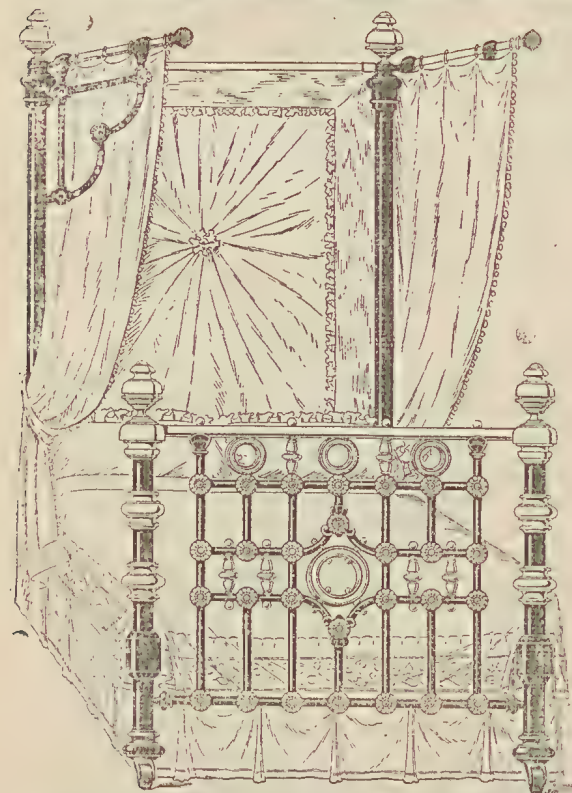


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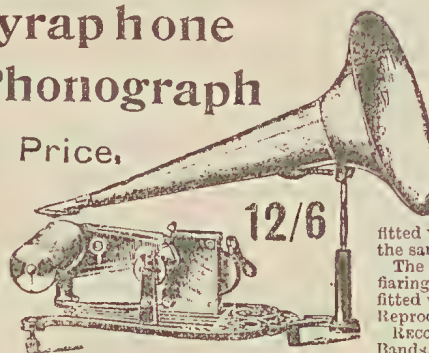
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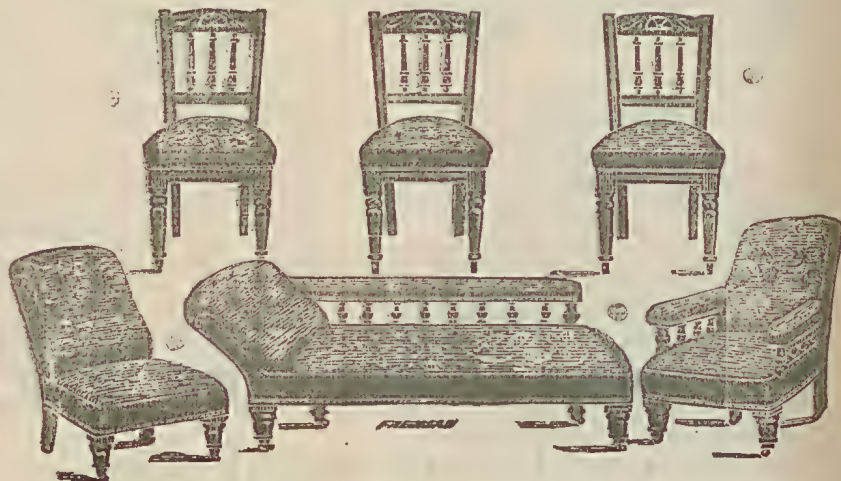
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The Pansy.

Its Cultivation.

(Continued from previous issue).

[By R. Blea]

— Points —

I am inclined to believe some good will come if there were rules prepared for our Shows. It is often remarked, 'What a beautiful flower,' simply because it is large. This is a mistaken idea, as all points cover size in a Pansy, and in other florist flowers. I have heard many say that there is no difference between a Show and a fancy Pansy, yet they allow it in Pelargoniums, Dahlias, and others. There are three classes in Pansies. Show Pansies are white ground, yellow ground, and selfs. The selfs comprise dark, white, and yellow. These should have a dense blotch on the lower petals, either small or large, and just showing in the upper ones. It must be well defined, without runnings. In white or yellow ground the color of belting must be the same as all the petals. This applies to the ground color also. Fancy Pansies have a blotch nearly covering the lower petals and two upper ones. The selfs are same as the shows, except this difference. Then come white, yellow, and other bands on the lower petals, with blue, purple, ruby, plum, and various colors on the top petals, laced, and other sorts. The markings should be distinct. The flowers should be of a leather-like texture, circular in form, quite smooth, and well defined, blotches to be dense and running, colours clear and regular, of a large size, not less than an inch and a half for shows and two inches for fancies. George Glenny says:—

1. It should be round, flat, and very smooth at edge, every notch or serrature or unevenness being a blemish.

2. The petals should be thick and of a rich velvety texture.

3. Whatever may be the colors, the ground color of the three lower petals should be alike, whether it be white,

yellow, straw-color, plain, fringed, or blotched. There should not in these three petals be a shade of difference in principal color.

4. Whatever may be the character of the marks or darker pencillings on the ground color, they should be bright, dense, distinct, and retain their character without running or flushing or mixing with the ground color; and the white, yellow, or straw-color should be pure.

5. The two upper petals should be perfectly uniform, whether dark or light, or fringed or blotched. The two petals immediately under them should be alike; and the lower petal, as before observed, must have the same ground color and character as the two above it; and the pencilling or marking of the eye in the three lower petals must not break through to the edges.

6. In size there is a distinct point, when coarseness does not accompany it, in other words, if flowers are equal in other respects, the larger is the better, but no flower should be shown under one inch and a half across.

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WHITE CURLED ENDIVE.

The Vegetable Garden.

Operations for the Month

All vacant land should be prepared during this month for winter and spring crops by a thorough digging, trenching in the case of new land, and heavy dressings of rich manure. This done, the soil should be thrown up that the weather may act upon it, and that it may benefit from the autumnal showers.

BORECOLE or KALE.

It is doubtful whether this vegetable is worth growing when there are so many kinds of the cabbage family which can so easily be grown. It prefers a stiff soil, but may be grown successfully in any garden.

The seed may be sown in beds or boxes and the seedlings afterwards transplanted. The soil should be rich with well-rotted stable manure. Plant in rows two feet apart each way.

BROCCOLI.

If the instructions given in these columns have been followed, you should have plants large enough for transplanting. If so plant out in rows two or three feet apart each way. The ground should be kept perfectly clean by hoeing, and the loose surface drawn round the surface

of each plant. If a further supply is required a little more seed may be sown either in boxes or a seed-bed, which should be shaded and watered. When the plants are strong and hardy they should be planted out, about 3 or 4 inches apart, in a small, well-prepared bed, in order that they may develop well for further planting out in their permanent places.

BRUSSELS SPROUTS.

A succession crop of this excellent vegetable should be sown. Those previously sown should be making good headway. When the plants reach their height, which is known by the tops beginning to cabbage, the latter ought to be cut out. As the side leaves begin to fade they should be gradually removed, commencing at the lowest.

Sow the seed in a box or seed-bed, and every care should be taken in watering and shading sufficiently. When the plants are large enough they should be moved to well dug up but not too heavily manured ground that has been prepared for them. The growth must not be forced, or else the young sprouts will not form well. Plant in rows about two feet six inches apart. The plants to stand about two feet from each other in the rows.

CABBAGE.

Plant out the seedlings that are large enough, and make a further sowing for succession.

Sow seed thinly in little rows, about 2 in. apart. Plant out strong young cabbages from the seed-bed to some well-manured ground in rows 18 inches apart and a foot in the rows for early sorts, and two feet apart for the medium-sized sort, whilst the very large varieties should have three feet of space between them.

CARROT.

Sow during this month for early crop. Prepare some ground by digging deep and fine, and by well draining, but avoid applying manure unless absolutely necessary, and then take care that it is old and thoroughly rotten. The best way to manage is to use a bed, or part of a bed, which has been heavily manured for some other vegetable. If fresh manure is used the roots will, in all probability, become forked, and of bad shape. Sow the seed in drills, which should not be deeper than half an inch. Cover over with fine soil, and firm down with the back of a spade. The seed is covered with little hooks, and care should be taken that it is well separated before sowing. The drills should be from one foot to 18 inches apart. The seed will take a good while to come up, and as the plants are exceedingly small at first the weeds should be looked to as often as possible.

CAULIFLOWER.

Those previously sown should be ready for transplanting. In planting out care must be taken that the plants do not get a check, or they will not produce fine heads. Keep the ground well stirred between the rows, and give them an occasional watering with liquid manure. More seed may be sown.

Sow the seeds thinly in beds of nicely prepared light soil, and transplant in good rich soil which has been trenched and well manured, in rows of from 2 to 2½ feet each way.

CELERY, RED and WHITE.

It should be remembered that celery requires a great deal of moisture during

(Continued on Page 17)

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its growth, for its native localities are wet and marshy places. When planting out make shallow trenches so that water and liquid manure when applied will not run to waste. It may be mentioned that although the plant requires plenty of water during its growth, it may be possible to over-water, whereby the result is a loss of flavor. The proper quantity to apply can only be learned by experience, and anyone who will take an interest in the gardening work will soon learn. The best manure to use for celery is the droppings of farm animals, mixed well with soil when the ground is being prepared. If anyone wishes to try the common old method of growing and blanching this plant he should dig out trenches 12 inches deep or more and about 16 inches wide, the soil taken out of the trench to be spread along the top of the bank. At the bottom of the trench dig in a good supply of manure and plant strong stocky young seedlings 9 inches apart in the middle of the trench. When the plants have attained a good growth they can be earthed up so as to make the stalks white, or 'blanched,' the ordinary term used. The soil must not be allowed to drop into the centre of the leaves, or they will probably decay or become injured and unfit for use. The gardeners use paper round the stalks; but this is unnecessary if the stalks are held together, and care is taken when earthing-up is done.

Sow a pinch of seed in a box or pot. When the plants come up, and are large enough to shift, prick them out in a small bed, where they can grow strong and hardy.

CELERY, or Turnip-Roasted Celery.

Sow the seed in a box of nicely prepared soil. Prick out, like celery. When the plants are about six inches high, plant out in rich free soil, in rows 18 inches apart and a foot in the rows.

CRESS and MUSTARD.

Sow a little seed occasionally. If the cress is to be used with the Mustard, sow the first-named a week earlier than the Mustard. The plants will need water frequently when they come up, and also subsequently.

Sow in light rich soil in drills half an inch deep and 8 inches apart, and sow thickly.

ENDIVE.

This is a good substitute for lettuce. It is best suited to a warm climate. When the plants are pretty well full grown the leaves should be tied together so that the inner ones may become white and tender.

Sow in a bed or box, and when three or four inches high, plant out in good rich soil, which has been trenched and well manured, in rows a foot apart each way.

HERBS.

Seeds of all kinds may be sown. These useful plants should not be forgotten.

Sow in pots, boxes or seed-beds, and afterwards transplant.

LETTUCE.

This is a good time to sow seed.

For directions see those given for Endive.

ONION.

Opportunity should be taken now to sow a quantity of seed. Sandy loam is the most suitable soil for the plant. Well-rotted manure should be applied in quantity, the land well drained and the surface kept somewhat raised and made clean and fine for the seed. The beds should be narrow, so that they can easily be weeded. It must be kept in mind that weeds have a most damaging effect on young onion plants, and should never be allowed to grow and attain any size.

Sow in shallow drills about a foot apart and do not cover deeply. When large enough transplant in rows a foot apart and about six inches apart in the rows.

PARSLEY.

Sow a small quantity of seed, in order to keep up a supply of plants. It usually takes several weeks to come up.

Cover the seed lightly in rows a foot apart; thin out to nine inches apart in the rows.

PARSNIP.

Sow a few short rows. The ground should be dug deep, as the roots will extend to a great depth if the soil is free and open.

Sow in drills 18 inches apart, and when the plants are about 2 inches high, thin out to 6 inches apart.

PEAS.

Take the opportunity to sow a few rows of this excellent vegetable. Prepare the ground well, and, if it is poor, apply a good deal of farm-yard manure. As a general rule, the distance between the rows may be the same as the height to which the variety usually grows. It is advised, however, by good authorities to put the rows wide apart, say 12 or more feet, the intermediate space being filled up with other crops. For the early crops the situation should be well open to the sun. In dry weather mulch the ground and give plenty of water, and an occasional watering with liquid manure.

Sow in rows 2 feet apart for the dwarf varieties, and from 4 to 5 feet for the tall varieties.

POTATO.

To produce a fine crop it is necessary that the ground must have been well manured previous to planting. When the plants are six inches high, earth up and keep the ground free from weeds. When cutting Potatoes, two eyes are usually allowed to a set. Be particular to allow the wound to heal before planting, by leaving the sets exposed for a day or two, or sprinkle with wood ashes or lime. To ensure an early and good crop, the seed should be well sprouted before planting.

Sow in rows 2 feet apart and 1 foot in the rows. It is a good plan to plant in trenches six inches deep, and put a good coating of manure on top of the sets.

POTATO ONION.

This is propagated by the small bulbs, which are produced underground, like Potatoes. It is very early and prolific. The flesh of the Potato Onion is mild and of good quality.

Plant the bulbs very shallow in deep, rich, well-prepared soil, in rows 15 inches apart and 10 inches from each other in the rows.

RADISH.

Sow seed occasionally to keep up a supply. A light rich soil which has been previously well manured produces the best Radish.

Sow either in drills or broadcast, and when the plants are fit thin out to about two inches apart.



COVENT GARDEN MARKET BEET

RED BEET, (Long and Turnip).

Sow some seed in rows. Probably one row will be sufficient at a time. Select rich ground, such as has been heavily manured for some previous crop. Before sowing the seed make a shallow drill—say about an inch or so deep. If the soil has been made quite fine a drill can be made with the forefinger. Drop the seed along the bottom of the drill, and if the soil is dry, water well before covering up, so as to give the seed a thorough soaking, and then cover over with fine soil, and press it down with the back of a spade. Always use a line to mark out the rows. A clothes line will serve the purpose well, and will last for a long time if taken care of. For early crop you had better sow the turnip-rooted variety, as they come in much earlier than the long varieties.

SALSIFY OR VEGETABLE OYSTER.

This vegetable when properly prepared resembles very much in taste and flavor the Oyster, from which it takes its name. In growth it is much like the Parsnip, having long white tapering roots with a grassy top.

Sow in rich free soil, in rows a foot apart. When the plants are 2 to 3 inches high, thin out to 6 inches apart in the rows.

SAVOY.

Plant out your well-grown seedlings. Seed may also be sown, and care should be taken not to sow it too thick in the rows.

Follow the directions given for the cabbage, to which family this belongs.

SCORZONEA or BLACK VEGETABLE OYSTER

The long tapering roots are cooked in a similar way to Salsify. It should be soaked in water for a few hours before boiling to extract the bitter flavor. The outside skin is black, but the flesh inside is white, and of agreeable taste.

Culture same as for Salsify.

SPINACH.

Sow occasionally to keep up a supply. Make the ground rich with well-rotted manure, and if the weather is at all dry water frequently.

Sow in rows 16 inches apart, and when up thin out to 6 inches in the rows.

TURNIP.

Sow more seed for succession.

Set the seed in light, rich soil, in shallow drills 15 inches apart; sow the seed thinly, and when they come up thin out to 8 to 10 inches in the rows.

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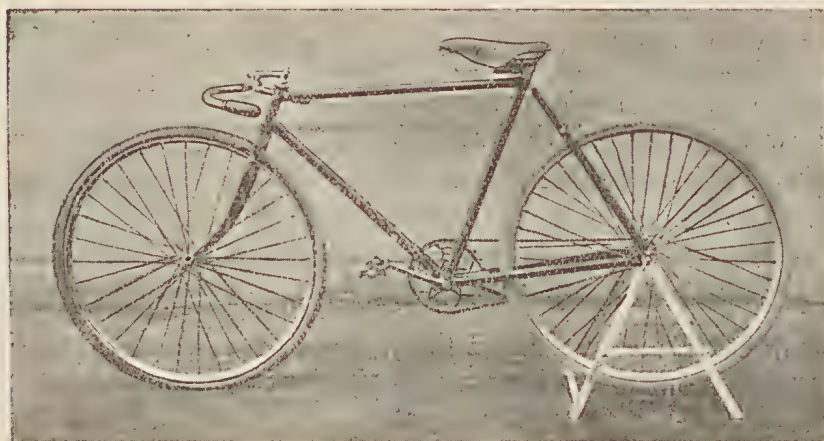
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PRACTICAL GARDEN BOOK, 4th ed.,
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Works by L. H. Bailey.

Principles of Vegetable Gardening, 5th ed.
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Principles of Fruit Growing, 9th ed., 1906.
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Principles of Agriculture. 10th ed., 1906.
8/; posted, 8/11.
Garden Making, 11th ed., 1907. 5/; posted,
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Horticulturists' Rule Book, new and
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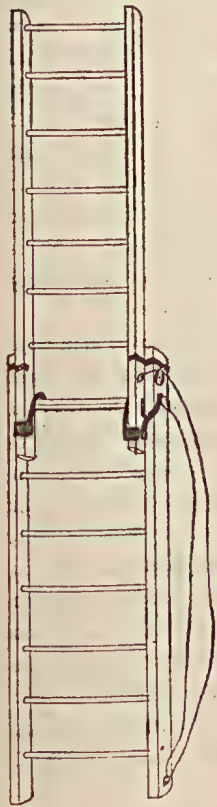
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Never scrape a frying-pan. Instead, fill it with cold water, to which a little soda has been added, and let it stand for several hours.

Milk will take out inkstains from boards, cotton, and other fabrics, if used before becoming dried in. Soak in a little milk, and then wash in the ordinary way.

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Take one quart of vinegar, a handful of common salt, and a tablespoonful of muriatic acid. Boil for fifteen minutes, and pour into a bottle. This may be warmed when used. First wash the furniture with warm water, then go over it carefully with the above mixture. Then polish with following furniture polish. Four ounces of shellac, two pints of alcohol, two pints of linseed oil, one pint of turpentine. When mixed, add four ounces of sulphuric ether and four ounces of ammonia water. Shake when used, and apply with a sponge lightly.

THE SECRET OF BEAUTY.

There is only one royal road to beauty and that is good health. To try to mould a beautiful figure and a pretty face out of an unhealthy body is as impossible as it would be for an architect to build his foundation on a bed of sand. Before you try your beauty exercises to reduce the hips and waist and to fill out the hollows of the neck, stop and think if you have the physical foundations to build on. If you find you are anæmic, exhausted, and tired, postpone the beauty exercises, and spend your time resting and getting strong. Sleep as much as you can, take long walks, drink lots of water, and do not eat many sweets.



THE FARM.

Stud Marino Ewes.

H. W. Ham, Sheep Expert.

Through the months of November, December, and January merino breeders have occasionally to go through their stud ewes and clean eyes and tails. To cut the wool away from the eyes during the time the grass is seeding is a necessity, but it is of greater importance that the tail parts be cleaned. Often ewes cannot be served by the ram through this.

As soon as a stud flock is worked up to be of any merit and fair length of staple, and fair density and good body covering is reached, then more or less tail and head covering comes along with it. The better and more high class a flock of merino sheep becomes, the more attention is needed. No matter what a breeder's aim may be, sheep will always vary; some become excessively covered and others too bare pointed and thin. Bare legged and bare faced sheep are usually thin and wasty below and not filled up very well with wool under and about the tail. These give less fly-blow troubles than the better covered class.

Stud ewes should be cleaned well about the tail, and burrs, &c., removed from under the rams to give them the final chance at this time of the year to serve

the ewes well. Burrs, both around a ram's pizzle, and over the tails of ewes, conduce to make the ram sore, for he ineffectually serves the ewes many times owing to them being excessively woolled. Some ewes will be found with their nipple cut off, the result of careless shearing. It nearly always contracts somewhat in healing and this makes it harder for the ram to serve quickly. Often ewes are closed up like mares, but this can be rectified at times by similar treatment to that prescribed for mares.

There is also a scald caused by a black gummy substance on many stud ewes that is very sensitive and sore. It is worse some seasons than others. Ewes will not carry a heavy ram more than a few seconds as this scald is very painful. The wool and folds are pressed on it by the ram's weight and if a ram is, (as a stud ram usually is) thick set and heavy, and consequently slow of service, then very few ewes get in lamb. For scald there is nothing to equal three or four of the leading sheep dip powders, at a strength of one pint of powder to five gallons of water and kept well stirred. Put the ewe on her side, cross the hind legs, holding the bottom leg across behind the hocks of the topmost leg and mop the dip water on with a cloth. The water will

evaporate, leaving the powder adhering to the skin and wool and its action is then to dry up the scald. It will also, after three or four applications, begin to turn the folds and loose skin a dark colour, and later on, come right away. When shearing the wool and dirt away, care should be taken that no very severe shear cuts are made, as the action of the powder dips, if the strong sediment that settles in the bottom of the liquid be put on, is likely to be too severe and a few ewes may be lost if carelessly treated.

In stud weaner ewes the scald is always getting flyblown. If it is dried up, and the folds removed, the cause of fly blow in this class of sheep disappears. Maggots cannot live and thrive if they come in contact with powder dip provided it is of fair strength. Applying spirits of tar, sprinkled out of a bottle with a hole in the cork, or from a scent bottle with an adjustable top, is the best way to immediately kill the maggots, and this method is adopted by the best Tasmanian breeders; it is instant death to the maggots is very searching, does not take the wool off nor discolour it.

With flock ewes the method mentioned in the Sydney Wool and Stock Journal by Mr. H. H. Kelly of Garriwill Station, Gunnedah, N.S.W., is to be commended for speed and being effectual. His plan is to have a trough made of any length to suit the number of sheep to be treated and the number of men employed and to sit the ewes in a mixture of sheep dip, at a strength according to the degree of damage the flies are doing. In some districts, twice the strength of ordinary dipping may be found necessary, but some classes of sheep are worse than others. Where sweating is caused by folds meeting, these parts will need to be hand dressed with a stronger mixture. In a few cases the skin will crack and the

V I C E R

Serves

flies may leave the maggots in these cracks, but they never develop to any size. It is only when the sediment from the bottom of the tin is put on that this cracking happens.

In many stud ewe lambs the growth of wool over the head forces the eyelids in, and these ingrowing eyelids cause great irritation and pain; in ram lambs the horns lessen the pressure of wool over the eyes. A small piece of skin immediately above and below the eyelashes can be cut out, and the gap made by this means, when healing together, will draw the eyelashes out, causing the irritation to cease. Complaints regarding ingrowing eyelids are much more prevalent than many breeders are aware of.

Ingrowing eyelids, scald, and wool blindness, if not attended to, will prevent stud weaner ewes from thriving, no matter how one may study constitution and feed them. The narrow made, short stapled, excessively yolky type of sheep are not this trouble, as they are not stud sheep in any sense, and are a very unsuitable type in the general flocks. They are bred in flocks where weight per head is made the desired aim, although they will occasionally come in any stud.

Victorian 'Journal of Agriculture.'

Horses not Lying Down.

Cases not infrequently occur of stabled horses acquiring the habit of not lying down to sleep at nights, but remaining standing up in their stall. This habit is a most objectionable and, in fact, a most harmful one, because it prevents the horse from obtaining proper rest, and that, as may readily be imagined, tells adversely both upon the animal's condition and upon its working capacities. The legs also suffer very considerable harm

when a horse gets in a habit of never lying down, since they are never relieved of the weight of the body, but have to support it in the night time as well as during the day. Thus they are subjected to an unintermittent strain which tends to wear them out prematurely. For a horse always to remain standing and never to lie down is, of course, an entirely unnatural habit. To break the animal of it once it has become firmly established is at best very difficult and oftentimes practically impossible. Various causes may give rise to this unfortunate and harmful stable habit by far the most common undoubtedly being stiffness of joint resulting from age. Thus some old horses habitually refrain from lying down at night, or in the daytime either, because, owing to their being somewhat stiff in their joints, it proves irksome and troublesome to them to lie down and get up again. Rather than make the special efforts which in their case lying down and rising up involve, they prefer to remain standing, and to sleep in that uncomfortable position. In this way they gradually get into the habit of sleeping while standing; and the longer they continue in it, the more firmly established does it become, until finally nothing will induce them to lie down in the stable. Sometimes the only reason why a horse will not lie down at night is the that stall is unduly narrow, so that the animal cannot move about sufficiently, preparatory to lying down. Horses are very commonly somewhat fidgety when they are about to lie down, and like to have plenty of room to move about in when doing so. Hence it will in some instances happen that a horse, on finding its freedom of movement too much restricted by the extreme narrowness of the stall on attempting to lie down, will not do so, and in this way he gets into the habit of

remaining in a standing position overnight instead of lying down. In such cases the evil can be remedied by placing the animal in a roomier stall or, better still, in a loose box if this is available. On finding itself in more roomy quarters where it has more freedom of movement, the horse will readily lie down.

When young horses are taken up into the stables and stood in a stall for the first time, it not infrequently happens that they refuse to lie down for the first few nights, because, after enjoying complete liberty, they are unaccustomed to such cramped quarters and to having their freedom of movement so much interfered with by being tied up by the head. This naturally makes them feel very awkward at first when attempting to lie down, and may render them altogether disinclined to do so. When a young horse thus at first refuses to lie down, it usually adapts itself to the new conditions sooner or later, and learns to lie down in its stall in the natural course of events, so that no anxiety need be felt when the animal refrains from lying down for the first few nights.

Sometimes—though this happens but comparatively rarely—the habit of not lying down at night-time is acquired by a horse as the result of its having been cast in its stall. This awkward accident—particularly if the animal in question is of a nervous temperament—may frighten it so greatly and remain so impressed upon its memory—horses have a retentive memory, particularly for disagreeable things—that for the future it is afraid to attempt to lie down for fear of a similar accident befalling it. When a horse acquires this objectionable habit in the manner just described, it may be that under favourable conditions the animal will in the course of time forget about its aversion to lying down, and lose the trick

O Y T E A
You Right.

again without any special measures being taken, but more likely than not, once the horse has got into the habit of remaining standing up at nights as the results of being cast in its stall, it will continue in it, unless some special means are adopted to break it of the same.

In seeking a cure, the first remedy is to place the horse in a loose box if one is available, the animal, of course, being left loose, so that it can move about therein at will. The roomier the loose box is the better. Though it may be averse to lying down in a stall, and when its head is tied up (under which conditions its movements are so greatly interfered with and restricted), the horse, on being accommodated in a loose box, will very usually lie down readily on finding that it enjoys complete freedom of movement and can turn about as much as it likes. A deep bed of straw should also be provided, as a plentiful supply of litter will be a further inducement to the horse to lie down. Once the animal has learned to get down again, it will continue to do so, and it will thus quickly lose its habit of remaining in a standing position at nights. Should a loose box not be available, the horse may be quartered in an empty barn or in a coachhouse—the kind of accommodation matters little, the essential thing being that the horse should enjoy ample room so that it can turn about at will, and that it should not be tied up. Given these two conditions, it will be found in the majority of cases that horses which have got into the habit of not lying down in a stall will speedily lose it again. It will of course, not do to transfer them back to a stall for some considerable time after they appear to have been cured of their bad habit, because on the horse once more being placed in circumscribed quarters, and having its head tied up, the old trouble will most probably recur. The horse must be left in the loose box or other roomy quarters for a long time, so that it may quite forget about its former habit of not lying down.

—'Live Stock Journal.'

Peas, as green fodder, either alone or with oats or barley, are a fodder that is highly relished by pigs.

Teeswater Sheep.

The old Teeswater breed of sheep was the largest in England (says 'The Live Stock Journal'). Four-year-olds were killed, which weighed 55 lb. per quarter, and even more. Mr. Thomas Hutchinson of Stockton, an eminent breeder and grazier, killed at Christmas, 1779, a wether which scaled 17 st. 11 lb. (14 lb. to the stone), with 17 lb. of tallow. This, says Culley, was the heaviest sheep by several pounds per quarter he ever heard of. The animal was of the 'true old Teeswater breed,' which was famed for its mutton. These sheep were not kept in large flocks, and could not thrive on poor ground, and the practice was to depasture them in small numbers in small enclosures of the best grass. The enclosures were well sheltered, and the sheep had access to a stack of hay in winter. The Teeswater ewes were prolific breeders. Mr. Edw. Eddison possessed one which, in six years 1772-77, produced twenty lambs, the first nine in eleven months!

Miscellaneous Items.

Few foods equal peas when judiciously associated with other foods in producing a well-flavored, good-textured pork and bacon.

Clean dirt off roots for fodder before cutting them, and take care that no bits of iron or glass get mixed up with the fodder.

Superphosphates and ground bone are suitable for most crops, and returns will be obtained on most soils and on most crops the first year.

When pigs are weaned and are expected to make a good profitable growth, they will require more care and better feeding than they received while running with the sow.

All farmers know that animal bone is a good source of supply of phosphoric acid; they also know that the availability of the phosphoric acid will differ in different samples.

This year's Royal Agricultural Show in Melbourne will extend from August 31 to September 4. Last year's experiment of an extra three days was not a success, and will not be repeated.

On soils rich in vegetable matter (humus), where decay proceeds rapidly and organic acids are formed, the ground phosphate rock will give in many cases satisfactory returns, if applied in sufficient quantities.

What is usually called 'cold' soil is due mostly to excess of water, which finds no outlet by sinking into it, and is forced to evaporate from the surface. This takes so much heat from the soil that vegetation will not readily grow in it.

Plenty of exercise is absolutely necessary for stock. This is especially true of the brood mare, brood sow, and breeding ewes. Without it they are very certain to disappoint their owner at the time they bring forth their young.

Ground phosphate rocks are suitable for sour soils, which sourness is not due to excess of water. Ground phosphate rocks are not suitable for soil that have been farmed for a long time, and in which the vegetable matter is exhausted.

A sow is good for breeding purposes much longer than is generally supposed. After the pigs are farrowed, everything that will make for development should be provided, as when they are not fed and sheltered properly they become stunted and unprofitable.

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Rearing Calves.

By H. R. Alexander.

Rearing and feeding calves should be one of the most important duties on the dairy farm. From the calves of to day we look for the cows of the future, and unless these calves are well fed and cared for, we cannot expect them to develop into prime dairy stock. Dairy calves or heifers, to be a success as cows, must be kept growing and doing well, without unduly fattening, right from birth till they come into profit as milkers. Any check in growth or derangement of the digestive organs will have a deteriorating effect on the after value of the stock. On the other hand, a tendency to fatten, once developed in the heifer, will in all probability continue in the cow, and at the expense of her milk production.

Calf rearing is a simple and interesting occupation. Success will be assured when the feeder combines a good temper with a knowledge of cleanliness and a fair amount of common sense. On the question when the calf should be taken from the cow, opinions differ among dairymen. Some allow the calf to remain with the mother for several days after birth, and claim by so doing that the calf receives a better start in life. Other farmers hand-feed from birth. Under the first system the calf is long enough with the mother for the cow to become attached to her offspring; it is not desirable to develop this maternal instinct to any great extent in the milker, as when the calf has ultimately to be taken from her the cow frets, her milk yield being correspondingly checked. Further, having become accustomed to drawing its own supply of provender, the calf often objects to drinking from a bucket for several days, thereby receiving a considerable set-back. At Wallongbar the calf is left with the mother for twenty-four hours after birth. During this time the cow will have cleaned, fed, and established the youngster on its legs. Under this system, should the cow fret when the calf is removed, no shrinkage in milk flow will be apparent; and at this particular period of the cow's lactation milk is of no value from a cheese or butter-making point of view; in fact, colostrum has a most injurious effect on all dairy products. This being so, should a shrinkage be noticeable no real loss will

be sustained. Nature has provided this first milk, known as 'colostrum' or 'beastings,' as the first natural food of the calf. Colostrum, has a cleansing and laxative effect on the stomach and bowels; it regulates and stimulates the whole digestive tract into healthy action. No medicine or prepared food can take the place of colostrum, and no calf can be successfully started in life without receiving its just share of 'beastings.'

When taken from the cow, place the calf in a clean, comfortable pen, with a small run attached. All calves under 4 weeks old should be kept in this paddock, to allow of their being thoroughly established on a skim-milk diet before being drafted out among the bigger and stronger calves. To make calves tractable and easily handled in after life, a good plan is to tie up all youngsters for a few hours daily in this small yard; the lesson will never be forgotten.

During the first week or ten days of a calf's life, feed the youngster three times a day on the warm unadulterated mother's milk. By feeding three times daily there is less risk of overloading the stomach, thereby taxing the strength of the calf's digestive organs, than if the calf is fed only twice, in the morning and evening. At the expiration of ten days the mid-day meal can be dropped. Once the calf becomes accustomed to two meals per day, a small quantity of skim-milk may be added to the food, also an ounce of lime-water. Lime-water strengthens the system; also tends to neutralise acidity to the stomach, thereby to a degree preventing scours.

Gradually increase the percentage of skim-milk; at the same time reduce the quantity of full milk till the calf is 4 weeks old, when it should be fed solely on a skim-milk or whey ration. As the calf's diet is undergoing change a 2 or 3-ounce dose of castor or raw linseed oil, given twice a week in the food, has an excellent corrective effect, and prevents constiveness, the sure sign of digestive troubles and a forerunner of scours. Up to this stage no food other than milk is advisable, the change from full to skim milk being a severe enough tax on the calf's strength without any addition of solid matter in the ration. After the four weeks' stage, some calf-food can be fed with advantage; gradually add the food to the milk, taking, say, two weeks to place the calf on a full allowance.

A mixture of crushed linseed 1 part and pollard 2 parts, when well boiled, makes a cheep and nutritious food, and compensates to a degree for the butter-fat extracted.

A full one-meal allowance for a 6 weeks old calf would be—

- 1 pint linseed and pollard porridge.
- 1 oz. lime-water,
- 10 lb. skim-milk.

This to be increased as the calf grows older. Should milk be short in quantity, the addition of porridge and water to the above ration would keep the calf growing.

As milk passes through a separator it becomes considerably charged with air. The presence of any excess of skim-milk is harmful if fed to calves, and will cause colic and scours. Separated milk should be allowed to stand for a short time prior to feeding to poddies, to permit of air escaping. Splendid results follow cooling skim-milk as it comes from the separator, afterwards warming the cooled milk to feeding temperature by means of steam or a hot iron. If calves must be fed on skim milk direct from the separator avoid all froth. Allow calves free access to rock salt.

When cheese is made, follow above feeding rules, substituting whey for skim-milk and allowing a larger quantity of linseed porridge.

To make the whey more palatable, also to increase the feeding value, 2 ounces of molasses per meal may be added to ration. This quantity of molasses will be found ample; if fed in excess molasses has a rather opening effect on the bowels. As drawn from cheese vat whey contains a varying amount of gas, which, if fed direct to calves, would in many cases cause hoven. Whey should be allowed to stand for an hour or two to allow of gas escaping, or better still whey could be pasteurised and cooled as drawn; this would expel all gas and check development of acidity. Calves can be reared equally as well on whey as on skim-milk provided cleanliness and care be observed.

Suppliers to co-operative factories should insist on all whey shoots and tanks being kept in a sweet condition; they must be scrubbed and scalded daily.

Feed calves regularly, their meals nearly as possible dividing the twenty four hours. Their food must be warm, fresh, clean, and fed from thoroughly clean buckets. All calf food should be so pure and wholesome that the feeder would, if need be, drink of the mixture. Feeding temperature should be maintained between 90 deg. and 100 deg. Fahr.

Three feeding systems are in vogue among dairy farmers—from troughs, by means of rubber teats, and by bailing up and feeding from buckets. Having tried all these methods I can unhesitatingly recommend the last mentioned. Diminutive bails can be erected at a very small cost, and by feeding each calf individually from buckets every animal receives its proper allowance of food, and sickness or loss of appetite can readily be detected and attended to.

When feeding from troughs the method is to fill the trough with milk for, say, twelve calves; after drafting this number of poddies into the feeding yard the feeder takes his stand at one end of the trough armed with a long stick. As the greedy, quick drinking calves appear to have had enough, the feeder, gently or otherwise, as the case demands, taps them on the nose with the stick, keeping them in this way till the weaker or slower drinking calves get their share. Needless to say, calves fed in this way never look an evenly nourished lot. Feeding by

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means of teats may have some good points, but experience has proved to the writer that results never compensated for the trouble and expense connected with the rubbers and tubes.

If grass is plentiful calves need no other food in addition to ration already mentioned. During dry summer spells and winter months an allowance of hay and silage is necessary. To ultimately become a cow with the depth of body and capacity for food so desired in milkers, the digestive organs of the calf or heifer must be fully developed; this can only be done by liberal and bulky feeding. Silage made from any green fodder makes an ideal roughage for young dairy stock; it is cheap, palatable, easily digested and readily eaten; silage acts as a laxative and keeps the bowels in a healthy condition; lucerne, meadow and Hungarian millet hays are excellent fodders, but are considerably more expensive than silage. Oaten or wheaten hay when fed to young stock is digested and relished better if chaffed and damped down with molasses and water.

When feeding hay from racks, should calves appear somewhat costive, 2 or 3 ounces of crude molasses given in their milk will correct the trouble.

When weaning, put calf on one meal a day for a week or two and then feed once every other day, gradually reducing food allowance till the calf is weaned.

When to wean depends on the calf and grass available; it never pays to wean a calf and turn it out to starve on bare paddocks.

—'Agricultural Gazette of N.S.W.'

News and Notes.

Stir each of the separate lots of cream each way to keep them uniform.

Look well to the cow's comfort, for an uncomfortable cow never milks well.

The life of a separator depends very largely on all the bearings being kept well oiled and clean.

A dairy farmer of Hawera (N.Z.) is said to have drawn a cheque for £187 for December, from 100 cows.

The condition of the droppings is an excellent index to the manner and condition of digestion and the health of the cow.

If you desire your cow to be an easy milker, with teats that feel like velvet, be careful never to milk her with cold or dirty hands.

The man who undertakes to work at dairy-farming with the old-time bandage over his eyes is at a fearful disadvantage. The world has gone on and passed him.

It is an unwise and thriftless plan to be always changing cows. A good herd can never result from such a process.

The true type of a dairy cow is that which furnishes the most and best of any commercial products at the lowest cost.

Sometimes cows got into the habit of holding up their milk. This is especially true when a cow is first milked by a machine.

A churn should never be filled more than half full of cream, and the churn should be stopped several times at the beginning of churning to remove the cork and allow the escape of gases.

The ingredients which go to make cream are collected by the digestive organs of the milch cow. Very often it is not more feed that is necessary to make more cream, but better digestion.

The records of 16 cows of the Ontario experiment station showed that the different individual ranged from 19,065 to 5,236 pounds of milk, and the profit over the cost of feeding ranged from 109.76dol. to 17.44dol.

In selecting the heifers, keep those from the best cows so long as they have strong constitutions and are shapely. The testing and weighing of their milk will prove whether they are worth keeping for a second year.

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FIRLE—2½ acres, lovely orangery full bearing, splendid house 8 rooms, etc., stables, pigstye. £1,375.

CITY, close Hanson Street—Detached stone house, 4 rooms, etc. £315.

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CROYDON—3 acres close station, rising neighborhood. £150.

NORTH UNLEY—Residence, 8 rooms, bath, pantry, cellarette. Enclosed area, lavatory, stables, trapshed, 1-16th acre. Only 1-8th mile walk G.P.O., close penny section. £890.

CROYDON, close Station—Superb freestone Villa, 6 rooms, every modern convenience, 50 x 150. £665.

CITY, South Terrace—Well built Villa 9 rooms, every convenience, large block ground, stables, motor house, concert hall, man's room, etc. Only £1,680.

PORT ADELAIDE—3 shops and 1 room each, brick, almost new, £650. Rents 33s. weekly, rates only £3 yearly. Pays well.

CITY, East Part—2 cottages, 3 rooms, verandahs, £400; rents, 14s. 6d. weekly.

PENNINGTON TERRACE, NORTH ADELAIDE—Residence, 6 rooms, bath, etc., stables, trapshed. £700.



NOTICE TO FRUIT AND PLANT DEALERS.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.
2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.
3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.
4. No plants other than those growing in pots having soil attached to their roots will be admitted.
5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.
6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State,
7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.
8. No plants or portions thereof will be admitted from any State or country where phylloxera exists unless accompanied by a declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in the exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phylloxera exists or has existed in the plantation from which the plants originated.
9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.
10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace.

L. O'LOUGHLIN, Minister of Agriculture.

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Agricultural College, Roseworthy.

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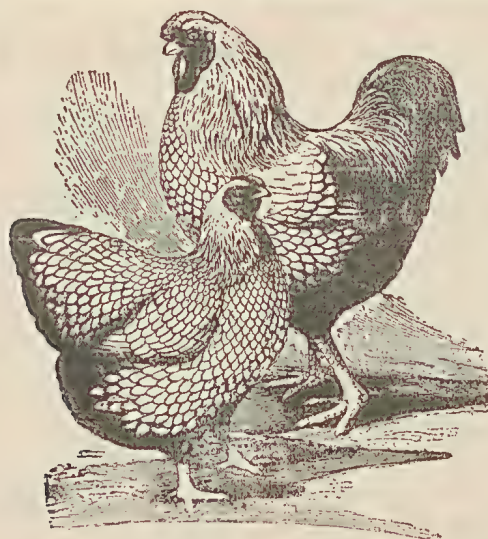
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Diseases of Fowls.

G. BRAGSHAW, in the 'Agricultural Gazette of N.S.W.'

(Continued from last issue.)

—Abscess.—

This is the name as applied to a collection of pus or matter, and may form in any internal or external part of the fowl's body; sometimes the result of an accident, while often the cause is not apparent.

A common place for abscesses is the breastbone of growing cockerels, and usually situated about half way up the breastbone, and may be any size from a marble to, in rare instances, that of a golf ball. The skin on this part of the fowl is very transparent, and the matter is quite liquid, its dark blue colour showing through the skin. These abscesses, or boils, are most easily treated, only requiring an incision, when the watery matter will run out. The wound should then be syringed with warm water, to which a few drops of disinfectant have been added, then dried. The slight incision will heal up without further treatment.

The cause of gathering is usually supposed to be an injury to the breast by flying on to the roosts, and why cockerels should be more liable to the trouble than pullets can only be explained on the ground that, as a rule, the breasts of pullets are better covered with flesh than the growing cockerels, whose breastbones

are usually prominent; and it should be noted that, in two instances, when I killed birds with the object of discovering the cause, in both the bone had been injured, it being the seat of the trouble.

Another common location for abscesses, but of another form, is on the ball of the foot, and known as Bumble-foot. The commencement of this trouble is the thickening of the underparts of the foot, which ultimately become inflamed. The tissue under the skin becomes affected, a thick matter then forming. The pressure of the bird's body on the part irritates the trouble, which, if not treated, gradually works into other parts of the foot and legs.

The heavy breeds are most liable to the ailment, Dorkings in particular. At the same time I have seen many instances of it in Leghorns and Hamburgs, while it is not unusual in Bantams, particularly the feathered-legged breeds. Bumble-foot although at first a simple looking ailment, is really not so; for although slow in development, if not treated, usually accounts for the death of the subject. It is believed to be the result of a bruise from continually being kept on hard or stony ground; while many think it is caused by the fowl's flying from a high perch on to the hard ground. In connection with the latter, I have had experience of keeping Brahmas which were never allowed to perch, and cases of Bumble-foot were in the flock.

The remedial measures are, to pare the hard surface of the swelling and poultice frequently. If pus has formed, then two good clean cuts should be made across the wound in the form of a X, and the matter squeezed out. Frequently this is of a cheesy nature, and will have to be scraped out with a penknife. The wound

should then be washed out with carbolised water, or diluted Condy's Fluid; the foot to be bandaged up with a clean wet cloth, and not removed for, say, a fortnight, at the end of which time the wound will likely have healed, and no further trouble ensue. In cases where the disease has got into the tissues beyond the ball of the foot, it is difficult to effect a cure. Male birds are more frequent subjects of the disease than hens. In relation to this, and the abscess on the breastbone, low perches are advocated, which, if not wholly preventive, will be partially so.

(To be Continued.)

A Poisonous Weed to Poultry.

The Government Poultry Expert (Mr. D. F. Laurie) has received from Mr. L. Senn, poultry breeder, of Port Pirie, a sample of a weed growing on his property. Mr. Senn forwarded it for identification, believing that it was poisonous to fowls and ducks. An examination by the Director of the Botanic Gardens (Dr. Holtze) had disclosed the fact that the weed is *Lycium homium*, of which the fruit and leaf are undoubtedly poisonous to poultry.

Old Hens.

A common complaint amongst those who keep fowls as an adjunct to the farm is, that the birds do not lay a fair number of eggs. It is remarkable how such persons stand in their own light as regards the management of their poultry. They will persist in keeping their old hens year after year, instead of keeping early hatched pullets. We have repeatedly noticed that farmers who are offered a good price for pullets promptly sell them all off and retain the old hens. This simply means that the nearly worn-out old birds stop laying for two or three months, or, if they do lay, only produce two to three eggs, and then start to sit. Now, supposing that they were to sell off these practically useless hens at even 1s. each, they would be really saving money. For, supposing a man has forty old hens, costing, say 2s. each for corn, he is actually paying at the rate of 2s. a head for them, and getting no return for his outlay. Now, suppose, further, that these forty old hens are disposed of, and forty pullets kept. If they are anything like worth keeping, they will pay for their keep twice over, and, in the same year, will be worth twice as much or more than the old useless hens.

Why should the poultry-keeper act differently to the dairy farmer? We do not find them sticking pertinaciously to old cows. If the cow neither gives sufficient milk to pay for its keep, nor puts on flesh, what does the dairyman do? He just puts her in the market and

sells her for what she will fetch, and in so doing he is a gainer. Let the poultry-keeper do the same, and he will not have to complain that poultry do not pay.

—'Queensland Agricultural Journal'.

Washing White Leghorns for Exhibition.

H. V. Hawkins, Poultry Expert.

White fowls, and others of light colour, require washing all over. The requisites are plenty of hot water, a basinful of soapy water—made by dissolving cut-up soap in hot water—a nice soft sponge, and some dry towels. Having washed the feet and legs, fill a tub with water, hot enough for an ordinary bath, and sufficient to go round the body of the bird; care must be taken to thoroughly drench the bird to the skin. Part the plumage and work it about with the sponge under water, then rub the sponge, well soaped, into the feathers, up, down, and across; for the fluffy feathers in front use the hand, working it up and down. Continue working at the feathers until every particle of dirt is removed.

The next operation is to wash the head, sponging well round the eyes, the top of the head, and down the hackle. After this place the bird in a tub of clean warm water—which will also do for washing the next bird—and rinse it well taking care that the soap is thoroughly removed, otherwise, the plumage will become clogged, and will not web nicely. Having pressed out with the hands any soapy water, put the bird into a third tub of cold water to which may be added at least a tablespoonful of borax, which will assist in preserving that stay-white colour, which is desirable in the show bird. Then rinse quickly—but thoroughly. The cold bath will have the effect of closing up the pores, minimizing the risk of the bird taking cold. Place the bird on the table, and remove any water that remains with a sponge, squeezed dry; then, using a towel, dry the head, wipe down the neck, and sop the rest of the body, always working the way of the feathers. A stimulant may now be given

—20 drops of ammoniated tincture of quinine to a tablespoonful of milk. When this is done put the bird in a crate placed before a fire with a strong glow of warmth avoiding a fierce heat, and from time to time, turn the crate until the bird is nearly dry, but still damp. Remove it to a lined exhibition basket placed in a warm but not hot, position, the object of this final drying being to secure a slightly moist atmosphere so that the plumage properly webs again. Birds may be washed three or four days prior to exhibiting. They will keep perfectly clean if there is plenty of chaff in the pen, and the droppings are frequently removed.

—Victorian "Journal of Agriculture."

The price of eggs is rising steadily. The weekly supplies at the different markets are not sufficiently to meet demands. The quantity put down in cool stores or preservatives was, this year, much smaller than usual, and the market is, to a great extent, dependant on new laid eggs. As there is every chance of the high rates being maintained for three or four months, poultry-keepers should endeavor to bring on early pullets. Eggs produced before the end of May will find a good market.

It has been proved by careful tests that an infertile egg, or one without the life-germ in it, will keep in any situation for a much longer period than a fertile egg. During the course of some experiments which were carried on by the editor of one of the largest American poultry journals, infertile eggs were placed in a drawer of an office desk and kept there for 12 months. At the end of that time evaporation had dried up the contents of the egg to one-third its bulk, leaving it in the form of a solid, but the eggs were, according to those making the experiment, still sweet and quite palatable.



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The Orchard.

THE APPLE CROP.

Alternation of Fruiting Seasons.

By Geo. Quinn, Horticultural Instructor.

In many districts of South Australia the crop of apples is so light this year that one has to search carefully on some of the trees to find a single fruit. In some districts of the Hills scarcely an apple is untouched by codlin moth, the pest having concentrated on the few fruits available, in addition to which the trees in the early part of the season had an absolutely barren appearance, so that repressive measures were considered unnecessary. The Mount Lofty district carried a very good crop last year, while the Angaston district, which had a very light yield last year, has this season an exceptionally fine lot of fruit.

The subject of the irregular fruiting of apple-trees from year to year is engaging the attention of horticulturists in all parts of the world where apple-growing has risen to be a distinct industry. In Europe and the eastern States of North America, where the climatic conditions are much more severe, it is only reasonable to assume that this factor has a great deal to do with the irregular cropping, as distinguished from the cropping in alternate years, which usually occurs in Australia. It is generally accepted that certain varieties of apples only fruit in alternate seasons, and although no absolute evidence is yet available, minor

tests have been made with a view of ascertaining whether this habit is a fixed characteristic or only due to the physiological effects of carrying a heavy crop of fruit. In connection with the spur-forming pip-fruits, such as apple and pear, it is a well-known fact that usually the energies of the spur are so concentrated in the development of the fruit that the extensions, unless the spur is exceptionally strong, rarely terminate in another flowerbud; but on those spurs which do not bear fruits there is a greater chance for the extension to develop a matured flowerbud for the next season's crop.

Under South Australian conditions there appears to be some evidence that more even production of apple crops may be attained by the following means:—Suitable tillage and feeding of the trees, systematic repression of diseases, regular pruning of not too drastic a character and adapted to the needs of each variety, thinning out of fruits when very heavily set upon certain kinds, which is done with the object of producing a better sample, and, finally, the mixing together, in a plantation, of a fair number of varieties which blossom approximately at the same period. This would appear a fairly large order to carry out, but it embodies nothing more than what is being done in a number of our best-kept orchards of this State the careful manipulation of the branches and spurs of the apple-trees has not been carried on for any great number of years, and, in fact, the generally accepted idea is that after an apple-tree reaches the bearing stage, there is practically no further need to prune it, excepting to occasionally thin out a limb here and there; but Professor L. H. Bailey's reference to the peach and the grape-vine opens up room for thought in the direction that pruning operations should be carried along lines which imply that, while certain operations are devoted to repairing waste and producing ripened fruitbeds, others should be devoted at the same time to the production of fruit for that season. It is very obvious that if the grape-grower and the peach-grower were to act upon the lines adopted by the apple grower, their plants would not only

resort to a system of alternate bearing, but very soon would come to a condition when even this result could not be depended on. Personally, I am of opinion that to remedy this irregular fruit-bearing habit our trees must be more systematically treated, but to what extent this must be done will depend very much upon the conditions which prevail in the locality and upon the varieties which are grown.

S.A. 'Journal of Agriculture.'

Fumigation of Nursery Stock.

Dipping nursery stock in lime-sulphur wash or other insecticides has recently been much advocated as a substitute for fumigation with hydrocyanic acid gas. The N. Y. Agri. Exp. Station at Geneva finds, however, that this treatment, if used at all, must be handled with care to secure scale destruction without injuring the trees. With the sulphur wash, exposure of the trees for too long a time or at too high temperature resulted in injury; while with any of the materials used, exposure of the roots to the mixture resulted in a serious injury to the stock. For nurserymen, the station still recommends fumigation as most effective and least liable to injury: and would advise orchardists to use the lime-sulphur as a spray after the trees are set, rather than as a dip when they are received.

—'Florists' Exchange.'

Secret of Canning Fruits.

An exchange says the secret of canning fruits is in the fact that fermentation is caused by 'microbes' or ferment germs which are killed when subjected to boiling temperature. If the fruits are placed in cans or glass jars, filled with either pure water or weak syrup, then subjected to boiling, and finally closed down so that no air and fresh germs can gain an entrance, the fruit will keep good for a couple of years.

To Crystallise Fruits.

The following method of crystallising fruit is given in the 'Agricultural Journal' of the Cape of Good Hope:—

The means of preserving fresh fruits in a crystallised form is attained by extracting the juices from the fruits and replacing them with sugar syrup, which, upon hardening, preserves the fruit from decay, and at the same time retains their natural shape, and, to some extent, flavour. The process is as follows:— Fresh fruit, nearly ripe, whole, or cut into quarters, in the case of citrus and such large sorts, should be boiled until they are soft enough to be handled without breaking. In the case of citrus fruits, the rind should be lightly pared off, and the pulp removed, at least a couple of hours before boiling. The softer kinds, such as peach, plum, apricot, &c., would merely be steeped in boiling water for a very short time, care being taken that they are not immersed sufficiently long to be cooked. The exact time can only be determined by actual experience. After this, the water from the fruit should be allowed to drain off thoroughly, and when sufficiently dry, they should be placed in hot sugar syrup, and kept there for a few days, so that the sugar may enter the fruit cells and displace what juice remains after the boiling or scalling process. The fruit should then be lightly washed in clean cold water, and packed in dry white sugar while wet, and allowed to remain there and dry off in a draught, until it is hard enough to be packed away for transport. A common home recipe for preparing sugar syrup is:—1 lb. white sugar to 1 pint of water, adding the white of an egg to every 4 lb. of sugar; boil this mixture over a fast fire for twenty minutes, and strain through a cloth while hot, when it is ready for use.

The present season has been favorable for peaches. In dry years the fruit frequently fails to mature properly. Peach growers should make provision for storing water, so as to be able to irrigate the trees when the natural moisture is deficient.

Interesting Orchard Notes.

All land intended for planting should now be got in readiness for the autumn cultivating.

All fruit that is being stored must be gone over frequently, so that any showing signs of decay may be promptly removed.

Enable late peaches to ripen quickly by a judicious thinning of crowded shoots and such growth as is unduly screening the fruit.

Apples and pears should not be allowed to ripen on the trees where they are at the mercy of every gale, but should be gathered when perfectly dry, and stored until dry.

Cherries from Western Australia were sent to India for the first time last December, and landed in excellent condition. This should prove the foundation of a profitable industry.

The present export season for apples will be a phenomenal one as regards Victoria, for the output will be more than double that of last season. There is a sadly different tale to tell as regards the apple crop of this State.

The Western Australian orchards are producing considerably more fruit than can be used locally. This season the public could purchase fruit at prices hitherto unheard of in the West. Peaches were sold at 2/ per case of 36lb.

Autumn is the best time to apply lime to the soil. The early rain will carry the lime down, and incorporate it with the soil much better than when used in the spring. Soil that has become sour through excess of moisture, and imperfect drainage, requires liming at the rate of from 1 to 3 tons to the acre.

The fruit fly pest appears to have been overcome to a large extent in New South Wales. The Government entomologist (Mr. W. W. Froggatt) and the district inspectors visited numerous orchards in the Hawkesbury, and other fruit-growing centres recently. On the whole of the trip not a single fruit fly maggot was seen.

There is a strong demand for Australian grown oranges in the London and German markets during the months of September and October. Last season an experimental shipment from Adelaide realised from 16/ to 21/ per case.

Owing to the low temperatures this summer the consumption of fruit is not nearly as large as usual. An experienced fruit salesman in the wholesale trade is opinion that the demand is about half of what it would be if the weather was warm. The public turn away from fruit when the weather is cold in much the same way as they do from iced drinks.

Dr. McKenzie, of Geelong, is reported to have discovered traces of arsenate of lead on the peelings of some apples. It is not stated whether or not the quantity was sufficient to do any harm to the consumer. Fruit that has been sprayed with an arsenical mixture is sure to contain some trace of the poison. It has been computed that a person would require to eat not less than two cases of sprayed apples at one time before he would be affected.



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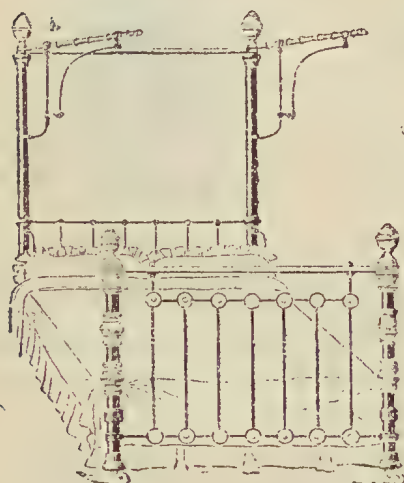
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BEE = CULTURE.

Advice to Beginners.

By Isaac Hopkins, Apiarian, in Bulletin
18 of N.Z. Department of Agriculture.

II. THE HIVE TO ADOPT.

(Continued from last Issue.)

Happily the time is past when it was necessary to explain the difference between a common box and a modern-movable-comb hive as a domicile for bees. Any one keeping bees in common boxes now does so deliberately, and at a loss to himself. Nearly every box-hive beekeeper smothers his bees over a sulphur-pit, and does not get one-tenth of the honey he might secure by adopting modern hives.

I had the great pleasure of introducing the Langstroth hive into Australasia in the season of 1877-78, and it has practically been the standard for these colonies ever since; it may therefore be expected that I shall recommend it here.

It will not be out of place to make a few remarks about this hive. In 1851 (fifty-eight years ago) the Rev. L. L. Langstroth perfected the hive which now bears his name, and gave it to the world. It is astonishing when we realise how perfect it must have been when it left his hands, for, notwithstanding the many attempts made since to improve upon it, the Langstroth hive remains to-day not only the same, but the foremost in use and popularity among the most experienced apiarists in the world. We rarely hear at the present time of such hives as the Quinly, Adair, American, and Gallup, yet these were favoured largely in America at various times; they have gone, and the Langstroth remains. Even the famous G. M. Doolittle, the great American authority on bee culture, and the erstwhile champion of the Gallup hive and frame has come round to the Langstroth. I have before me an extract from a letter received recently by an Auckland resident from Mr. Doolittle in reply to one sent him asking his opinion as to the best hive. He says,—

I do not now use the hive I described in my little book 'The Hive I use' to the extent I did, as I find the Langstroth hive does nearly as well with less labour and we have only the 1 lb. sections now, the larger (2½ lb.) not finding a ready sale. I judge the Langstroth hive is as good as any for New Zealand.

It is evident that Mr. Doolittle feels a pang in giving up his old love, and though he reluctantly does so, he admits the Langstroth is the best hive. It is grati-

fying to me when I remember how persistently I have advocated in the past this hive against all comers.

It is the misfortune of many beginners to believe before they even understand properly the rudiments of bee-culture, that they can improve on the Langstroth hive, and then and there start out to modify it in some shape or form, only to regret it when experience has convinced them of their mistake and loss. I have nothing to say against an experienced bee-keeper experimenting in any direction he may consider an improvement possible—in fact, he should be commended for doing so—but having seen so many mistakes made by beginners I feel it my duty to warn others against falling into the same errors.

MAKING HIVES.—There is no reason why a person handy with tools, and with spare time on his hands, should not make his own hives, but it must be understood that they must be made accurately. On the other hand, a person may find it to his advantage to purchase all he requires from the manufacturers, as hives can now be procured at very reasonable prices. In the former case one at least should be purchased, in order to have an accurate pattern to work from. The internal fittings such as frames and sections should certainly be procured from the manufacturers, as it is well-nigh impossible to make these accurate enough without machinery.

A very good plan when more than one hive is wanted is to get one made up, and the rest in the flat, in parts ready to be nailed together, and so save in cost of carriage.

How Bees "Buzz."

'One day I was addressing some elementary schoolboys,' says a teacher, on the subject of bees, and, turning to a bright-looking little chap, I said:

'With what part of its body does a bee buzz, Jimmy?'

'Jimmy' answered confidently, but ignorantly—

'It's buzzom, sir.'

'The other boys laughed loudly. So did I.'

I'm sorry to have to mess your face so, Kitty, said Tommy, as he daubed pussy's face with jam, but I can't have people suspecting me.'

'Poor b'ye!' exclaimed O'Hara, condoling with Cassidy, who had been injured in blasting operations at the quarry. 'Tis tough luck teh hav' yer hand blowed off.'

'Och! Faith, it might have been worse,' replied Cassidy. 'Suppose O'id had me week's wage in me hand at the toime?'

The Young Folks.

A Pussy Cat's Tale.

When Lizzie had a birthday gift
(A sweet canary bird),
As you might guess, I had to shift
To just where they preferred.
The bird, of course, was quite beloved,
And I put out of sight;
When bedtime comes, of course I'm shoved
Into the yard all night!

This morning there was quite a row
About a bit of fish;
The mice, they said, got in somehow
And stole it from the dish;
At other things the mice did try
To nibble or two bite.
Now comes the question—where was I?
Out in the yard all night!

My life is not all I desire—
So you needn't think it is!
Though sometimes I get near the fire,
Or in the lap of Liz;
But on the whole my life is rough,
And what I say is right;
Of one thing I've had quite enough—
Out in the yard all night!

I am a great, big tabby cat—
Quite portly, so they say;
But still the food that makes me fat
Is what they'd throw away.
One night they left some Irish stew;
I ate it with delight!
They grumbled, and poor me they threw
Into the yard next night!

Conundrums.

When is a doctor most annoyed?
When he is out of patients.

Why is grass like a mouse?
Because the cat'll eat it. (Cattle eat it).

How was the admiral's naval rank
reduced when he married the widow?
He became her second mate.

Why is the first chicken of a brood
like the main mast of a ship?

Because it's a little ahead of the main hatch.

What is the difference between a milkmaid and a swallow?

The milkmaid skims the milk and the swallow skims the water.

What is the difference between pugilist and a man with a cold?

One knows his blows, and the other blows his nose.

Who is the man that can drive away customers and still keep them?

The cabby.

Which is the most wonderful animal?
The pig; it is killed, and then cured.

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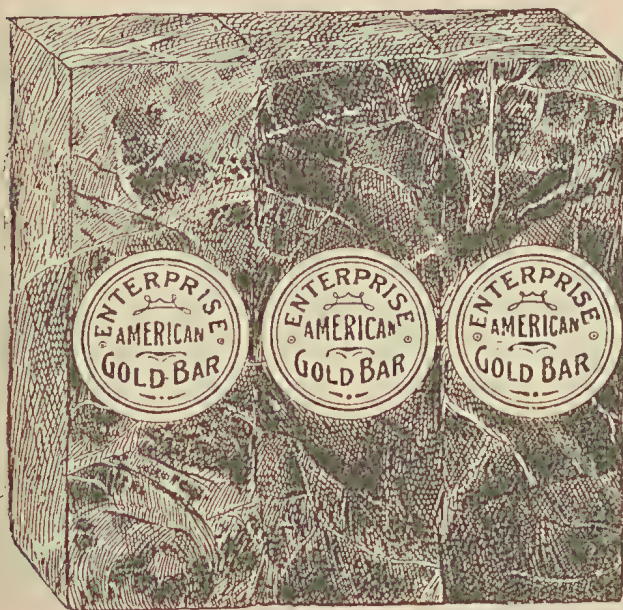
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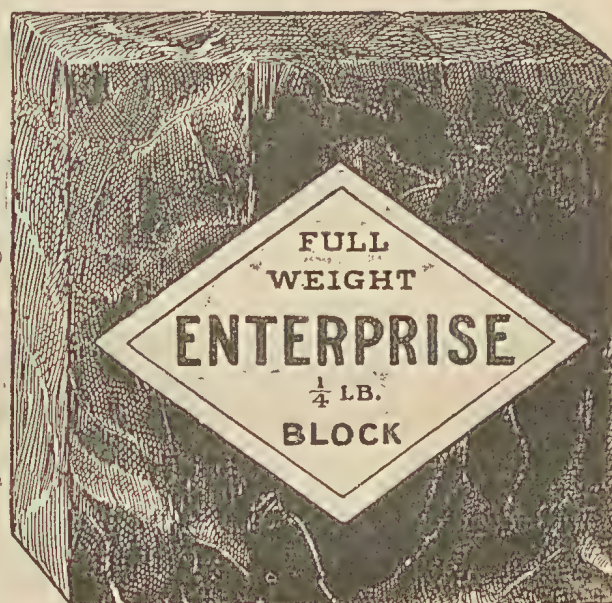
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April Number of

1909

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry).

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and Minnie Bailey

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Royal Society for Protection of Birds.

The Bird of Paradise

Answers to Correspondents.

:o:

'B.B., Wallaroo.—We make no extra charge for back numbers of the AUSTRALIAN GARDENER.

'P.G., Cross Keys.—Rape is a splendid pasturage for pigs, as they thrive rapidly, and do not bloat or scour on it, as sheep are likely to do. To obtain the best results give the pigs grain, such as peas, maize, oats, &c., at the time they are being pastured on the rape.

EDITORIAL.

Dry! Dreadfully dry! dry as dust. Such is the refrain to all the recitals from producers during the month of March. There is always a handy topic to ring on to, and generally it is the one nearest their heart, which means mostly their pocket. For where their treasure is there also is their heart. And little wonder. It is easier for teachers and philosophers to talk pretty theories about what men should do, and think, and talk about, but let the cash returns shrink, or show a prospect of shrinking, and philosophy counts for little against climatic conditions for the producer. However, it is adverse conditions, whether weather or anything else be the irritant that make the producer resourceful. At least the producer that thinks becomes resourceful. If March month be dry he has to do something to supply the deficiency, and hence we see him cultivating, and harrowing, and stirring up his orchard generally, for he knows that the 'blanket' topsoil will not allow the moisture still in the soil to evaporate and thus conserves what is still left for the benefit of the root system of his trees. There is no doubt, however, that while much can be done to help the trees especially young stuff, to pull through the droughty periods rain is the consideration most needed. A shower of rain at a critical period will save more time, money, toil, and exertion than weeks of human invention to supply the deficiency. And so it happens that March has brought a full crop of disappointments over the lack of rain. One gardener remarked to us that given fairly good soil, manure, water and sunshine and he would undertake to grow any kind of vegetation that was ever known to exist. That is all right; we would not contradict him; but we also know the effect of a shower of rain upon thirsty soil and leaves that have their breathing apparatus dried up. Before going to print we are promised rain and when that comes the whole face of nature will be changed. Those laggards who have not been keeping their cultivators shining through work will be sorry and sore with disappointment, while the busy ones will be busier still, selecting their trees for planting and leaving everything ready in good time.

— Drainage —

In the notes on vegetable operations this month the writer opens with some timely



A ROADSIDE VIEW OF PILE'S PADDOCK, NORTH KENSINGTON.

remarks upon drainage. We are quite satisfied that gardeners are not sufficiently seized of the importance of under draining the heavy gully soils. Many seem to have the impression that if the ground has drain pipes put in it means that the ground will become dry. That is not so. It simply means that the ground will discharge the surplus moisture which would otherwise stagnate and sour the soil. These drains should be put in before the winter rains come on, when the ground will soon become boggy and too difficult to work. And the veriest tyro in gardening knows that trying to work wet ground does it more harm than good.

— Mushrooms. —

Mushrooming will be a fashionable pastime in the early mornings as soon as the rain comes. Even with the little shower that came the other night there were some of the alert ones out with baskets, and were not altogether disappointed. But why wait for the rain? Mushroom culture is very interesting, yes, and very profitable. Now is the time to commence operations, and the article on the method of cultivation deals with the business.

— Oranges. —

Growing oranges is not the easiest thing in the world, although some worthy people seem to think that they have only to put a tree in the ground and it will grow fruit without much further attention. If the fruit does not come like magic they think the game is not worth going on with and pronounce it a failure, like everything else such people take in hand. Amongst other things to be done we would draw the attention of our readers to the article dealing with keeping the trees clean. The fungus disease known as 'black spot' is one of the worst known amongst the orange groves, and the writer gives all instructions how to deal with it.

— Dairying. —

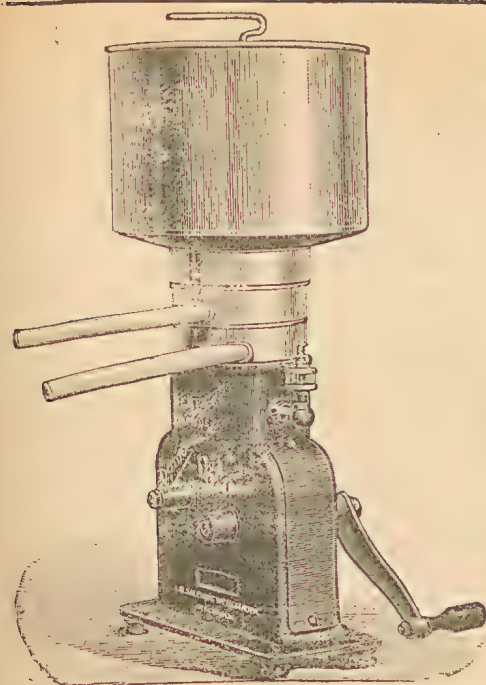
Choosing cows suitable to the conditions on the farm is more important than most haphazard buyers seem to think. The class of feed that suits some breeds is no use to others, and so many other conditions that go to make up a successful dairy. These things seem to be overlooked, and everywhere is to be seen mixed herds all expected to thrive equally well under the same conditions. A short extract of good advice upon the subject is given in this issue.

— Flowers. —

Not the least interesting articles in this issue are those dealing with the care of young roses, and the description of annuals and perennials—Lobelias, for instance. What prettier little flower in whole realm of beauty can be found than the modest Lobelia when set out daintily as a border. The rich blue catches the eye at once. Blue flowers are so comparatively rare in gardens that it strikes the thorough gardener as being somewhat strange that they are not more cultivated.

— A Roadside Scene. —

A pretty little scene is reproduced in this issue from a photograph taken by Mr. John Bannigan. It is a suburban road to Adelaide which, by the fine gum-tree in the foreground, gives the appearance of a pretty country scene. This runs alongside what has for many years been known as Pile's Paddock, being one of the few remaining blocks of land belonging to a large estate owned by one of the pioneer families of the State. This fine block is near the present terminus of electric tramway system to Kensington, and some attempts were made to secure it as a public recreation park. The negotiations, however, came to nothing, and with the present rise in land values for building purposes the chances of securing it for the public are fast receding.



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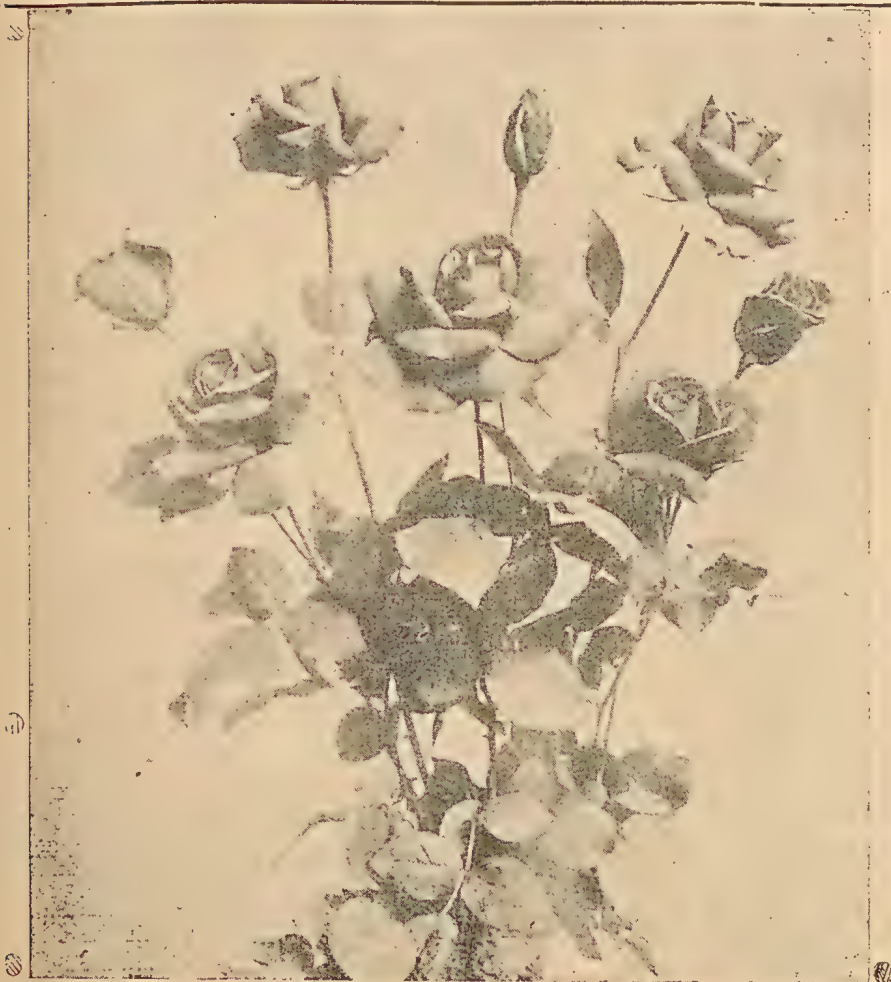
A. W. DOBBIE & Co., GAWLER PLACE,
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Flower Garden.

—:O:—

Care of Young Roses.

There is nothing so effectively gainful in the rearing of young rose stock as the timely potting up of rooted cuttings and the transplanting into larger pots as their growth proceeds. While doing this separate the thriftiest from the slowest growing and throw away the weakest and least promising among the latter. For first potting and, in the case of tea roses, also for the second shift, some good, fresh and somewhat sandy loam of turfy texture, thrown through a coarse meshed sieve answers well. In transplanting old manure should form a part of the soil used in quantities determined by appearance and condition of the plants. Grafted roses must be handled carefully; especially when the hose end is used in spraying, since too great a force is liable to here and there knock a scion from its stock. Suckering side and root-growth must be rubbed off as soon as seen.





SEPHIA.

ALGOMA.

GLOBOSA ALBA.

MINNIE BAILEY.

Chrysanthemums — Some American Prize Winners.

SEPHIA.—An incurved bright yellow, very similar in style to Mrs. Park, but is an improvement on that variety, being double under all conditions. Certificate C.S.A.

ALGOMA.—A light pink incurved; t e

style of The Queen. The form and habit are all that could be desired of a commercial variety. Certificate C.S.A.

GLOBOSA ALBA.—A very compact, closely incurved Japanese; globular form and pure white, as the name indicates.

MINNIE BAILEY.—A beautiful bright pink, of the Mrs. Perrin type, from which it is a seedling. Not as large as some varieties, but will be a commercial sort for many years to come. Certificate C.S.A.

Notes for the Month.

Now is the time to plan and make any necessary alterations. There are few gardens in which perfect form has been attained. Every year should see some improvements made in this respect, another stage reached in the progress towards perfection. The garden is plastic in the hands of a skilful designer. He alters a few lines, converts a portion of lawn into border, and border into lawn, and a transformation is effected. Every day Nature's great garden and our neighbour's garden have some suggestion to offer us, and if we are not wise enough to register these hints and apply them at the first opportunity, we are no true gardener.

Now, then, is your chance to put the plans into execution before the autumn rains make the work impossible. Peg out your cutlines, and in forming curves the amateur cannot do better than seek the assistance of the garden hose, for, with its supple substance, it readily falls into the graceful curves one has in one's mind.

English grass lawns can be prepared and sown this month. The utmost care should be taken in the preparation of the soil. The ground should be deeply trenched, and the subsoil broken up. A good garden loam, not necessarily very rich, but containing a fair proportion of humus, should be supplied to a considerable and equal depth all over. This is most important, for the lawn is one of the first things to show the effects of a dry summer, and if supplied with a sufficient body of soil it is able to hold more moisture in reserve. A perfect level must be provided, and all holes and hollows that may occur should be filled up with loam. Sow thickly with the best English lawn grass seed procurable, and cover it with a film of light soil. Roll the lawn before and after sowing, and at intervals during subsequent growth. It should be kept closely mown, and if this is done frequently the mowings may remain to enrich the soil. Other excellent fertilizers are wood ashes with a little bonedust or superphosphate intermixed, and an occasional top dressing at two yearly intervals of fine compost.

Chrysanthemums require attention a this period. They must not be starved for want of water, and liquid manure applied twice a week will be of great benefit. The plants may need tying to stakes, and this should be done at an early date, taking care not to use supports unnecessarily high or stout. If fine flowers are wanted, thin out some of the buds, leaving only the centre bud at the point of each shoot. Mildew sometimes attacks the foliage of these plants. As soon as this pest makes its appearance, flowers of sulphur should be used.

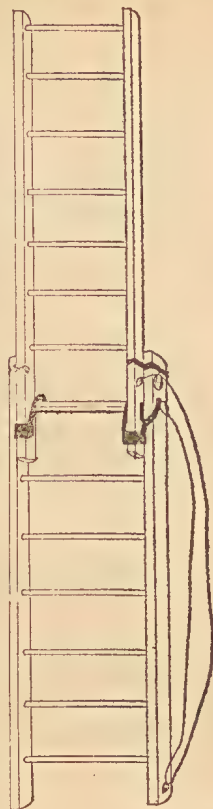
We advised the sowing of many hardy summer annuals last month. If this has been neglected it should be attended to during the present month. As a rule late sowings do not produce such robust plants and fine flowers as do those put in now, so you should delay no longer. Flowers can be so easily grown in this State that there is no excuse for anyone to be without a few. The best way to raise plants from seed is to sow in boxes or pots, or even old kerosene tins or jam tins, but these boxes or tins must have holes knocked in the bottoms to allow

surplus water to drain through. Before putting soil in these boxes, &c., be sure to put in some drainage material, such as broken-up brick, charcoal, small bones, &c., say an inch or two deep, and then fill up with soil of a light, friable nature. Be careful not to sow any seed deep; very fine seed should be hardly covered at all—merely a little fine soil sprinkled over it, and this should be pressed down lightly. Before sowing seed it would be advisable to water the soil well, and then to let it stand for a short time to settle down. Sow thinly, and do not waste seed. It is probable that a good deal of the seed you sow will not come up.

The garden is gradually assuming an autumnal appearance. Autumn tints are discernable already, and these gorgeous tones will soon compensate for the loss of summer bloom. The wind and heavy rain frequently experienced at this season make it necessary to tie up and stake many plants afresh. Exhausted and dying plants, withered stalks, and all untidy matter should be promptly removed to prevent that bedraggled, unkempt appearance gardens too often present at this time of the year. The Anemone Japonica is one of the glories of the autumn. Both the pink and the white varieties are quite hardy, increase rapidly, and are extremely decorative both for indoor and garden purposes. Michaelmas Daisies or the Perennial Aster, besides their soft nebulous beauty, have also the virtue of flowering profusely at this season. They are best replanted every year after flowering. The roots increase rapidly, and a big root will divide into several plants. Dahlias should still be making a display if the attention we have so often urged has been given them. Chrysanthemum, the autumn queen of flowers, should now be justifying its title.

As May is a favorable month for planting and transplanting. Roses the ground should be thoroughly trenched and drained now for their reception. Cuttings of many hard-wooded trees and shrubs can be taken at this season. Hollyhocks, when they have finished flowering, can be cut down to within six inches of the ground. To propagate them the root can be divided or cuttings taken off the basal shoots.

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DOUBLE COMPACT LOBELIA.

Description of Flowers.

May be Sown during this Month.

LOBELIA

(named after the French botanist, Lobel) is perhaps the prettiest of all annuals for edging and bordering, grouping, or designing, in fact this beautiful little annual of prevailing blue cannot well be put out of place anywhere in the garden or ornamental window pots or frames. The *Erinus* dwarf varieties are most popular, rarely growing more than six inches high. The herbaceous kinds are scarlet, crimson, red, yellow, and shades of blue, in a hundred varieties from all over the world. *Lobelia Littoralis* has a trailing habit, and makes a lovely basket plant, both with flowers and bright seeds. The *Lobelia* illustrated above is of the Double Compact variety. It is of compact, dwarf growth, the plants forming neat round bushes, with rich purple stems and foliage; very free flowering, and profusely covered all the season with large double flowers of deep blue.

CORNFLOWER.

Centaurea, cyanus. The name is derived from the classics, Ovid having declared to heal by it a wound in one of the centaurs, who were warhorse breakers in Thessaly. This flower was exceedingly popular some years ago, and is reputed to have been the favourite of the Emperor Frederick of Germany, and

ascribed as the national flower of that country. Whether this is so or not it deserves to find greater popularity with Australian gardeners. Cornflowers are very ornamental, and are useful for mixed borders and shrubberies. It will produce an abundance of flowers for bouquets, &c, in almost any soil. The varieties are very numerous, some of them having pretty silvery foliage. The colors are red, purple, yellow, white, blue, with variations of tint.

GAILLARDIA

(named after the French Botanist, Gaillard). This is a handsome flower in double and single varieties, usually bi-coloured, red, or may be brown and yellow. Very hardy, preferring a sunny situation and sandy soil. Requires little cultivation to keep it in bloom almost all the year through. *G. grandiflora* is the perennial single flowered, in a large variety of colors. *G. picta Lorenziana* is the double annual type.

GODETIA

(named after Godet, some say the poet Goethe) and *Oenothera* (roots supposed to be an incentive to wine imbibing), of the same order, are very showy plants for massing, the gay reds and crimsons being

very effective. Some good effects may also be obtained by mixing the shades of purple and white. They are early bloomers, and a succession can be had by planting late in the winter.

HELIOTROPE,

sometimes called "Cherry Pie," is a well-known plant of unsurpassed fragrance, suitable for pot or garden culture. It is a hardy perennial. The *Heliotrope*, like the *Luchsia* and many other plants, may be propagated by cuttings, the tender tips of the shoots being used for preference. The colors are white, deep blue, and dark violet; they are excellent for bouquets.

HELICHRYSUM

(from *helios*, sun, and *chrysos*, gold). The beauty, variety, and everlasting nature of the blooms of these flowers deserve more attention from cottage gardeners. Few flowers are prettier when grown in groups of white, red, yellow, orange, purple, and pink. They are divided into annuals, perennials, half-hardy, and hardy evergreen shrubs. A number have been introduced from the Cape, Western Australia, Tasmania, and Southern Europe. The dried flowers are much used for bouquets and church decorations.



HELICHRYSUM.



MYOSOTIS (FORGET-ME-NOT).

MYOSOTIS

(from mus, a mouse, and otis, an ear; resemblance of the leaves.) Universally known and loved for its beautiful little blue, gem-like flowers with golden eye, under the name of "Forget-me-not." It is a perennial plant, but does not thrive well in hot weather. Sown in autumn, it will bloom profusely in spring, covering itself with flowers of the most lovely cerulean-blue, most dainty for grouping. Being an aquatic, it needs constant watering, and, if grown in a pot, the latter should stand in a pan of water.

NEMOPHILA

is one of the daintiest of our little summer annuals. It makes charming little groups, and ribbons, centres, or circles. They are named from the Latin, nemos a grove, and phileo, love, love-grove, from their native habits of modesty, and introduced from California. The tips of the petals are coloured, some speckled and the main colors are white with purple specks, and pale blue. They will grow in almost any soil or situation.

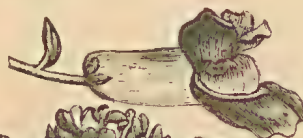
POPPY

The plant produces a thick milky juice, and hence the name papaver. This wild beauty of the cornfields has been under cultivation for years beyond recall, and becomes popular by fits and starts, according to the caprice of fashion. Nevertheless it always finds a place among the spring gaities. This magnifi-

cent family of plants includes some of the most lovely colors and shades to be found in the floral world. The Single Shirley, Iceland, and Tulip Poppies are charming, and the double varieties are gorgeous in their colouring. They are easily cultivated. All they want is good soil and plenty of room. They should be planted in clumps where the plants are intended to remain; as they do not bear transplanting easily. The varieties of poppy, both as regards size and color, are very numerous, bearing the names of Pæony, Ranunculus, and Caration-flowered.

ANTIRRHINUMS

(Snout-like or Snapdragon) are perennial, but best treated as annuals, as the young plants give greater satisfaction. Some of the dwarf varieties are pretty for clustering or bordering.



ANTIRRHINUMS.

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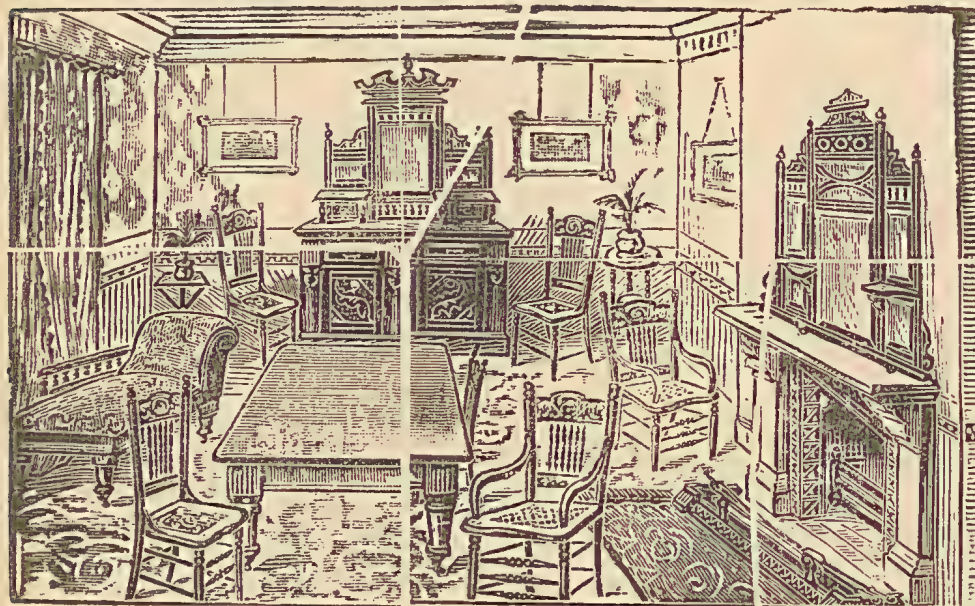
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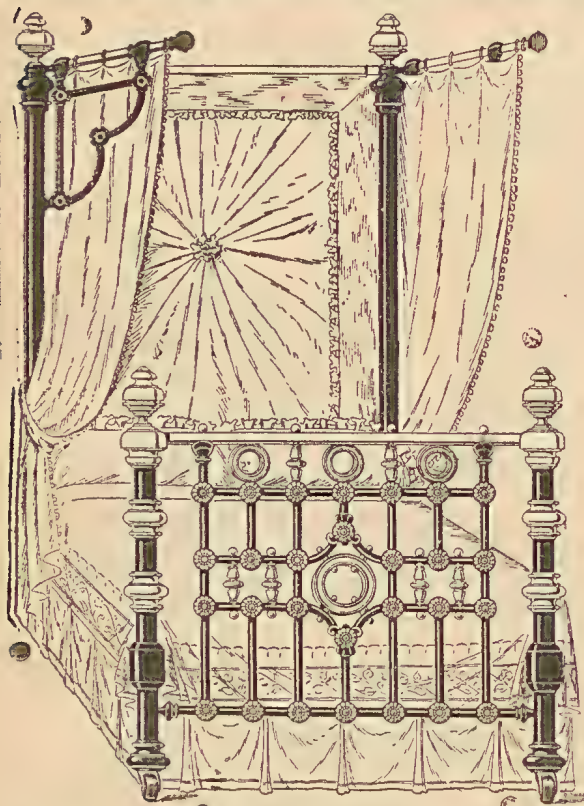


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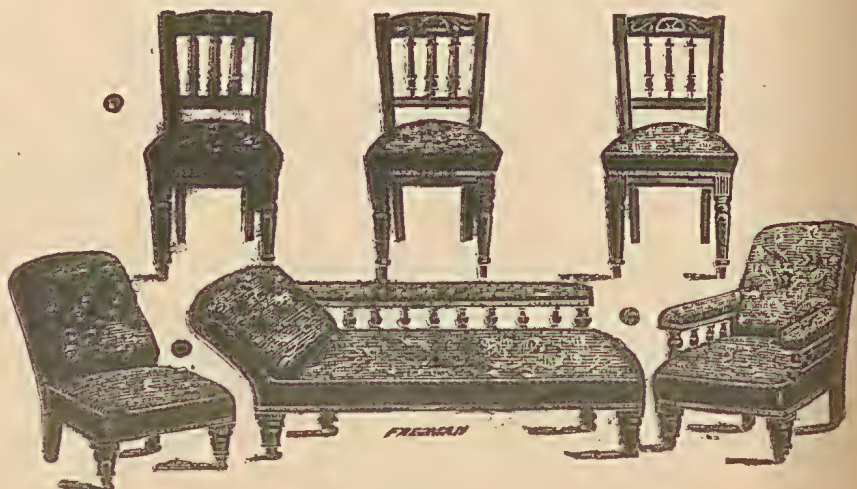
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6-piece DRAWING ROOM SUITE, as shown, beautifully upholstered, £4 15s. and £5 15s.

The Vegetable Garden.

Operations for the Month

As winter approaches our chief concern in cultivating is to keep the soil warm and sweet. Any beds that are being formed at this season should be so arranged as to attract heat and throw off moisture, quite contrary to the summer arrangement. Ridged land is always preferable for vegetables, being drier and warmer owing to a greater extent of surface being exposed to the sun. Perfect drainage is essential to successful vegetable culture, and, therefore, existing drains should be looked to, to ascertain that they are working properly, or a good system provided where this has been neglected.

Keep the garden quite free from weeds and take away all old and useless vegetables and remains of vegetables to a rubbish-heap, where they can rot and become useful manure for the garden. If it is thought preferable to burn them, carefully preserve the ashes for spreading over and digging into the ground.

ARTICHOKE.

This vegetable is cultivated for the immature flower heads, of which the fleshy receptacle, commonly called the bottom, and the lower part of the leaves of the calyx, are the parts used. It is a cultivated form of the wild cardoon, a native chiefly of the Mediterranean sea-coast. Sow a row (which will probably be sufficient) in light, rich deep soil, and plant out in rows about 6 feet apart. The artichoke will succeed fairly well on moist soils, if not too dry provided the ground be well manured.

ASPARAGUS.

It would be advisable to get a bed ready for some plants as soon as this can be done. The ground should be trenched 18 inches or 2 feet deep, some manure being well mixed up with the surface soil as it is being dug. It is not necessary to make a very large bed, for a few plants even will give an occasional dish if the plants are looked after; and if the soil happens naturally to suit them the supply

will be considerable. When the ground has been dug up the surface should be left as rough as possible until the time comes for planting. Asparagus likes a rich sandy deep soil, but it will grow fairly well in almost any kind of soil that has been well prepared. It is a native of the sea-coast of Europe, and has been in cultivation from remote times and long before the Christian era. It is found growing wild in the sandy interior of Russia, far away from the sea-coast, but probably the soil there is saline.

BROAD BEANS.

The soil best suited to this vegetable is a heavy clay loam, although it will grow and bear well in almost any kind of soil. We would advise you to sow a few rows only for early crop, and defer the general sowing for a few weeks. Dig the ground well, and if it is poor apply plenty of horse or cow dung, and if this has been well rotted, all the better. If artificial manure is used, apply little or no sulphate of ammonia or nitrate of soda. Use bone-dust or superphosphate of lime and potash. Sow in rows from two to three feet apart, according to the variety, for the dwarf-growing kinds may be sown closer together than the tall. The seed should be sown about four or five inches apart in the rows, and two inches deep.

BRUSSELS SPROUTS.

Sow the seed in a box or seed-bed. When the plants are big enough they must be moved to well dug up but not too heavily manured ground that has been prepared for them. The growth must not be forced, or else the young sprouts will not form well. Plant in rows about two feet six inches apart. The plants to stand about two feet from each other in the rows.

CABBAGE.

Sow seed as largely as may be thought necessary. Plant out, also, any young cabbages that may be available. They should not be pulled out of the seed-bed, but taken up carefully, without breaking more roots than can be avoided. The

Early Jersey Wakefield and Early Dwarf York are both good small varieties. The Sugar-loaf is also a good kind. Every garden should have a few plants of the red cabbage, which comes in very useful for pickling. If not required for that purpose, it may be eaten in the ordinary way. It should be noted that cabbages are greedy feeders, and need rich soil and abundance of manure.

CARROT.

Seed may be sown largely. Early Shorthorn and Improved Intermediate are good varieties to sow at the present time. Some good advice, and particulars as to sowing, was given in the March issue.

CAULIFLOWER.

This vegetable should be grown largely for it is well liked by almost everyone. Sow the seeds thinly in beds of nicely prepared light soil, and transplant in good rich soil which has been trenched and well manured, in rows of from 2 to 2½ feet each way.

CELERAIC, or Turnip-Rooted Celery.

Sow the seed in a box of nicely prepared soil. Prick out, like celery. When the plants are about six inches high, plant out in rich free soil, in rows 18 inches apart and a foot in the rows.

CELERY, RED and WHITE.

Sow a pinch of seed in a box or pot. When the plants come up, and are large enough to shift, prick them out in a small bed, where they can grow strong and hardy. Plant out a few seedlings into very well manured ground, if any are available.

CRESS and MUSTARD.

Sow in light rich soil in drills half an inch deep and 8 inches apart, and sow thickly.

ENDIVE.

If plants are available, they may be planted out largely. Sow a little more in a bed or box, and when three or four inches high, plant out in good rich soil, which has been trenched and well manured, in rows a foot apart each way.

HERBS.

Sow in pots, boxes, or seed-beds, and afterwards transplant.

LEEK.

This time of the year is about the best season to sow seed largely of leeks. Prepare a seed-bed and sow in rows. When the plants are about 6 or 8 inches in height they may be transplanted to a bed made exceedingly rich with good farm-yard manure. Make shallow trenches and plant in rows about 18 inches apart, the leeks to stand 9 inches from each other. Earth up as they grow. Water and liquid manure will be needed often if it is desired to grow the best of plants.

LETTUCE.

Sow seed largely, and plant out any young lettuces that are suitable, and of sufficient size to handle. The roots should not be broken, if possible, when raising the plants from the seed-bed.

For further directions see those given for Endive.

ONION.

Sow in shallow drills about a foot apart and do not cover deeply. When large enough transplant in rows a foot apart and about six inches apart in the rows.

PARSLEY.

Cover the seed lightly in rows a foot apart; thin out to nine inches apart in the rows.

PARSNIP.

Sow in drills 18 inches apart, and when the plants are about 2 inches high, thin out to 6 inches apart.

PEAS.

Sow largely of this general favorite. Cover the seed with soil to a depth not greater than 3 inches. The peas should be sown in drills about 3 inches apart. For manure, use well-rotted droppings from farm animals. Lime, especially sulphate of lime or gypsum, will be found useful. Potash and superphosphate of lime are good manures to use.

Sow in rows 2 feet apart for the dwarf varieties, and from 4 to 5 feet for the tall varieties.

POTATO.

Sow in rows 2 feet apart and 1 foot in the rows. It is a good plan to plant in trenches six inches deep, and put a good coating of manure on top of the sets.

POTATO ONION.

Plant the bulbs very shallow in deep, rich, well-prepared soil, in rows 15 inches apart and 10 inches from each other in the rows.

RADISH.

Keep on sowing a little seed from time to time, and root out all old tough plants. Use plenty of well-rotted manure,

Sow either in drills or broadcast, and when the plants are fit thin out to about two inches apart.

RED BEET, (Long and Turnip).

Thin out well the plants which are coming up, and keep the rows free from weeds. Sow a few more rows if desired. Full particulars regarding the cultivation of Red Beet was given in our March issue.

RHUBARB.

Now is a good time to sow seed of this vegetable. Roots are generally obtained to plant out, and time is thus saved, but in many localities it is difficult to obtain roots when they are required. There is no necessity to sow much seed, as a dozen plants will suffice for an ordinary family. Rhubarb succeeds best in a good deep soil, trenched 2 or 3 feet deep, and good rotten manure well mixed with the soil. No stalks should be gathered the first year, but in the following season a good supply may be obtained. In gathering, the leaf stalks should be bent down and pulled, not cut off. Give annual top dressings of well-rotted manure, and keep free from weeds, and stir the ground occasionally.

Sow in rich deep soil, in drills a foot apart and an inch deep; thin out to 6 inches, and in the following season transplant the seedlings in rows 3 feet apart and 2 feet in the rows. The crown should be 2 inches below the surface.

SALSIFY OR VEGETABLE OYSTER.

Sow in rich free soil, in rows a foot apart. When the plants are 2 to 3 inches high, thin out to 6 inches apart in the rows.

SAVOY.

Sow occasionally to keep up a supply. Sow seed thinly in little rows, about 2 in. apart. Plant out strong young

seedlings from the seed-bed to some well-manured ground in rows 18 inches apart and a foot in the rows for early sorts, and two feet apart for the medium-sized sort, whilst the very large varieties should have three feet of space between them.

SCORZONEA OR BLACK VEGETABLE OYSTER
Culture same as for Salsify.

SHALLOTS.

Plant out in drills about 1 foot apart as much of this useful vegetable as is likely to be required. The bulbs or cloves can be purchased from any seedsman. Dig the ground deep and manure it well. When planting just press the bulbs firmly into the soil. Keep the plants free from weeds as they grow.

SPINACH.

Sow in rows 15 inches apart, and when up thin out to 6 inches in the rows.

TREE ONION.

When the stalks of the Tree Onion are allowed to run up, they produce small bulbs at the top instead of flowers, and a large bulb at the base. It is by these bulbs that they are propagated. They are also used for pickles.

The bulbs should be planted in deep rich soil, in rows 12 inches apart and 6 inches from each other in the rows. They must not be covered much.

TURNIP.

Sow more seed for succession.

Set the seed in light, rich soil, in shallow drills 15 inches apart; sow the seed thinly, and when they come up thin out to 8 to 10 inches in the rows.

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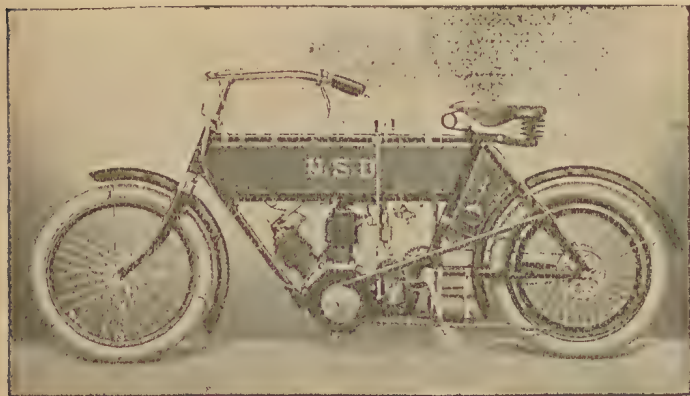
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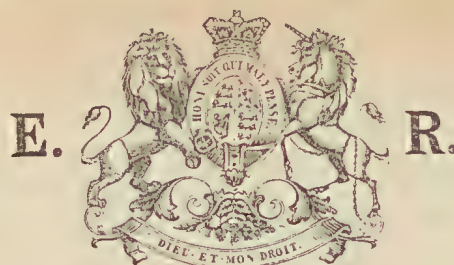
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The ENGINE TESTS recently held resulted in the Celebrated N.S.U. MOTOR CYCLES being FIRST, SECOND, and THIRD out of thirteen competitors. This was at the South Australian Automobile Club's Annual Hill Climb, when we also secured Fastest Time for the Second Year in succession.

This Contest is the Only Motor Cycle Engine Test that has been held in South Australia this year. We can prove this

EYES & CROWLE, 125 and 127 Pirie St., Adelaide



NOTICE TO FRUIT AND PLANT DEALERS.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.
2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.
3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.
4. No plants other than those growing in pots having soil attached to their roots will be admitted.
5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.
6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.
7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.
8. No plants or portions thereof will be admitted from any State or country where phylloxera exists unless accompanied by a declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in the exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phylloxera exists or has existed in the plantation from which the plants originated.
9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.
10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace.

L. O'LOUGHLIN, Minister of Agriculture.

Government Poultry Station.

Agricultural College, Roseworthy.

Eggs and Chickens for Sale during Season.

Black Orpington, Buff Orpington, and Indian Game—Eggs, 15s., Chickens, 30s. a dozen.
Silver Wyandottes, Haverolles, Minorca, White Wyandotte, White Leghorn, Old English Game—Eggs, 10s., Chickens, 21s. a dozen.
Table Birds—Eggs from various crosses, 3s. when available.

Settings will be 15 eggs and no replacements.

Chickens at a month old.

The stock is of first-class quality and vigorous.

For further particulars apply to the Poultry Expert, Crown Lands Offices, or the Poultry Superintendent, Agricultural College, Roseworthy.

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MUSHROOM GROWING.**A Simple Method.**

Almost anyone with garden ground and an abundance of manure of the right description may grow mushrooms without much difficulty. When successfully cultivated the mushroom is a very profitable crop, but it is not everyone who succeeds in growing this toothsome morsel.

The position of the proposed mushroom beds does not matter very materially, whether they are in the sun or shade, but they should be placed in a sheltered position as regards protection from the cold winds. The best time to start forming the beds is in the autumn, and for succession afterwards as manure is available, any time up to early spring. During the heat of summer they never do well.

As regards manure, no other than fresh horse manure, with half the straw litter mixed with it, will do. That from corn-fed animals is best. Until sufficient manure is collected, say, to make a cartload, it should be spread out thinly, and preserved from too much wet. When a cartload has been collected, it should be made into a heap, and left so, until it is well heated, which will be in about nine days. It should then be turned over, and left to cool for an hour, when it should be put in again to heat in the same way, for the same time, when it must again be turned over, and allowed to cool.

It will then be ready to form the bed. The bed should be made up in the form of a row of celery when it is earthed up. The dimensions should be—width at the bottom, 2½ ft.; height at the top of ridge the same.

In the course of a week or ten days, if all has gone on well, the heat of the bed will rise, probably to 85deg. or 90deg. Fahr. When the heat has fallen from these figures to from 70deg. to 75deg., then it will be the time to insert the spawn. In making, the bed must be pressed firmly down. The spawn, to be had from the seedsman, is usually sold in cakes of 9 in. by 5 in. These should be

broken by the hand into six equal pieces, forced, and pressed hard into the surface of the bed (all over), at distances of eight inches apart, holes being made deep enough for their reception to sink into the bed half an inch below the surface. Cover the spawn over with manure, pressing it well down. In the course of two or three days the bed must be covered over with soil (half an inch deep when well beaten down), damping the surface, and making it smooth, as if plastered with mortar, in order to prevent the heat of the bed from evaporating; ordinary garden soil will do.

The next thing will be to cover the bed over with dry straw, bracken, or other litter in sufficient quantity to maintain the temperature of the bed at from 55deg. to 60deg. Fahr. The bed need not be uncovered for the next five weeks, when the litter should be taken off, and a slight watering with tepid water given to the bed. Let it be covered over again, and the same temperature main-

tained, and in another fortnight uncover again to look for mushrooms, when there should be no disappointment. Afterwards mushrooms should be gathered twice a week for a matter of six or eight weeks. The surface of the beds should be kept moist by occasional waterings. It is not necessary to expose the whole of the bed at each picking, only lifting the litter up, and placing it down again after the picking is done.

When gathering the crop, do not cut the Mushrooms with a knife, but take them out by the root; this may be done by a twist of the thumb and finger, afterwards filling in the space made with a little loam.

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BOOT & SHOE MANUFACTURER,
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THE CLUB-ROOT DISEASE.

Its Effect on Cabbages.

HOW TO DEAL WITH IT.

The disease known as club-root in cabbages appears to be universal. It is the cause of much damage in local market gardens, and it is equally destructive in America and Europe. In the course of an interesting article on the subject, the 'Michigan Farmer,' one of the leading American horticultural papers, states that the disease is fungous in its nature. It is, however, of so low an origin that it has not been definitely determined whether it is of animal or vegetable life. It attacks the entire crucifera family (plants bearing their seed in pods), as the entire cabbage family, cauliflower, Brussels sprouts, wild mustard, etc. The roots of the plant are the seat of the disease, and it is noticeable by the formation of lumps or bunches varying from the size of a small pea to several inches in diameter. Slighter attacks, as those occurring late in the season, are not always fatal to the plant; but such cases are only exceptional, for, generally speaking, it means death to whatever it seizes upon.

—Combating the Disease.—

Whenever ground becomes once infested it is very difficult to eradicate the disease, and in many once famous cabbage-growing districts it has caused the almost total ruin of the industry. Acidity of soil is considered to be the cause of club-root. The condition of the soil should be ascertained at the outset. This may be done with blue litmus paper, which is obtainable at any chemist's shop at a trifling cost. The litmus paper must be kept in a perfectly dry place and away from the light. In handling take hold only of the extreme tip of the strip, as rough usage by the fingers prevents full action of the acid upon the paper. Select specimens of soil from various portions of the field or patch, as the acid condition may be far more strongly marked in some portions than in others. It requires but a small amount of soil for

each test; and, if preferable, the testing can be done in the open field, provided the soil is damp enough. In either case make an opening in the soil with a knife blade or in any other convenient way, and insert the strip of paper endwise in the opening, pressing the soil lightly together again.

Let it remain thus for an hour or two, then withdraw carefully and rinse several times in clear cold water, and allow it to dry. If a distinct red color entirely takes the place of the blue coloring, then it is evident that the soil is acid, and requires liming; and the brighter the coloring the more acid is the soil.

This acidity of soil is what must be corrected. It is a pretty well established fact that this is the chief cause of the disease, and once removed the trouble will in the main care for itself, or, at least, will not invade localities where it is not already present. The first step is to prove the acid condition of the soil. If it is bad in this respect use air slaked lime to the extent of 2500 or 3000 pounds to the acre.

—Treating Infected Soil.—

In gardens where the disease has taken a firm hold it will be necessary to gather up every infected head or stump and burn or boil them. Do not feed them, as it is said spores will live and be farther spread in the manure. If allowed to lie about, the rains will carry the disease, and by next year the germs will be ready to gain footing in other localities. Every vestige of diseased plants or roots should be destroyed by burning or boiling. The germs are often carried on the tools with which infected soil has been worked. It is better, if possible, not to use these implements in other fields, or, at least, until thoroughly cleaned. It is the safest all-round practice to give a heavy application of lime and seed down at once. If this is not practical, then grow crops entirely distinct from those liable to the disease.

In America it has been found that the treatment described has reduced the ravages of the disease. It is necessary that every grower should join in a concerted effort to stamp out the disease. It means an expensive struggle to cope

with it once it gains a foothold, and in this, as in most other cases, the safety lies in thorough preventive measures.

Another important point is that none of the same family crops should succeed themselves under any circumstances. Neither should they immediately alternate with any others belonging to the same general family. With strict adherence to the general precautions and measures as above, there is (concludes the paper) not much to be feared.

The Latest Freak—Cucumber-Orange.

An orange-cucumber, or cucumber-orange, is a freak combination raised by Mr. Howard S. Hill. The new fruit or vegetable resulted from an experiment tried several weeks ago. At that time an orange tree was in full bloom in Mr. Hill's cucumber hot-house, at the same time the blossom of the cucumber vines first appeared. Mr. Hill transferred the pollen from the orange blossoms to several cucumber flowers. The first appearance of the fruit was the same as that of an ordinary infant cucumber, but as the fruit grew the result of the inoculation became apparent. The cucumber, instead of lengthening out, remained round like an orange, with the orange bloom scar, but the skin was that of a cucumber with the same corrugations. When ripened the new product assumed a bright orange color, and from a distance appeared the same as an orange. Mr. Hill thinks that the new fruit will prove a favorite, as the taste of the orange and cucumber blend in an excellent manner and make a pleasing combination.—'Popular Science Siftings.'

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BEE = CULTURE.

Advice to Beginners.

By Isaac Hopkins, Apiarian, in Bulletin
18 of N.Z. Department of Agriculture.

(Continued from last Issue.)

III. WHEN AND HOW TO START BEEKEEPING.

The best time for a beginner to start is in spring or early summer; he should never commence in the autumn, except under the guidance of a practical man. The outlay in the first instance should not exceed, say, £7, and this amount should furnish an ample outfit of bees and hives for any beginner. The only exception to this would be where he or she had served a season as a cadet previously to commencing. 'Go slow' should be a maxim for all beginners. I have known of many disappointments and losses through acting contrary to this advice. The hives should be on hand in the early spring, and arrangements should have been made with some neighbouring beekeeper for a couple of early swarms which should not weigh less than 5 lb each. There are approximately five thousand bees to the pound, so that a 5 lb swarm contains about twenty-five thousand bees. I must warn beginners against buying bees in box hives, as the novice cannot judge whether they are diseased or not. Go to a reliable bee-farmer, if possible, and arrange for swarms; a good swarm is presumably free from disease, otherwise the colony could not have thrown it off. Take the advice of the person you arrange with, and let him bring and hive the swarms for you, if possible, as it will give you a lesson in handling bees.

—Start with Common Bees.—

Common bees being the least expensive it is advisable to start with them, and after experience has been gained it is easy enough at any time to italianise the

apiary on economical lines by purchasing queens only.

—Raising Section-Honey—

The beginner should commence by raising comb honey in 1 lb. sections; no extractor will then be necessary. The manufacturers' catalogue will guide you in selecting the hive. Any of the standard works contains instructions for working the hives to the best advantage.

—Beginner's Outfit.—

The following appliances (with their approximate prices) are all that are needed to commence with:—One hive with two half-stories for raising comb-honey, made up and painted, £12/0; one case of 3 ditto in flat, £21/6; 6 lb. of medium broad foundation comb 15/; 2 lb. thin section foundation comb 6/ one bee-smoker, 4/6; one bee-veil, 2/; total, £41/10.

The expenses of carriage and the cost of two swarms would swell the total amount to about the sum stated—viz, £7.

Some Use for Honey.

It is but rarely that we see honey on the table as regularly as jam; yet it is far healthier food than the latter. Take the following from the 'British Beekeepers Review' on 'Honey as a Food and Medicine':—The wisest man that ever lived advised his son to eat of honey, because it is good; and Democritus, who lived to be a centenarian, attributed his freedom from illness and his prolonged life to partaking of honey as a regular part of every meal. Just lately we heard of a young lady, whose life was despaired of by the doctors, being spared, and recovering by the regular use of honey as a food. Scientists inform us that honey contains almost all the requirements of life-supporting food, added to which it requires little or no digestion. We are also informed that its use helps the intestines and the kidneys in performing their special functions. For growing children who crave for sweets, nothing better than honey could be given. Ma-

homet discovered this important truth before he wrote the Koran, where he speaks of honey as 'this sweet wholesome substance, which sustains and strengthens the body, which cures all maladies, a thousand times preferable to the poisons administered by the doctor to the human race.' Recently a doctor declared that he cured several stubborn cases of constipation by the steady use of honey, prescribing no other medicine. In cases of nervous disorders it has been long recognised as a good tonic. Cuts, scratches, small wounds, chips, scalds, burns, and many similar small ills have been cured by an application of honey, or a salve in which honey formed the chief ingredient. Colds, coughs, sore throats, asthmatic irritation are frequently treated with honey. Bronchitis has been, if not cured at least greatly relieved by its free use. Many very palatable drinks can be made from honey, and in hot summer weather no better use can be found for honey than converting some of it into a cooling and refreshing drink. Honey biscuits are pleasant eating, and should find a place on every tea table. Honey sweets have an agreeable and appetising effect on the palate. Honey vinegar is the best and most pleasant form in which this bitter relish can be found.

The local Government has been asked to compel fruit-growers to clean their orange and lemon trees of red scale.

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The Orchard.

Black Spot in Oranges.

This disease is one that is very prevalent in some of the orange orchards near Sydney. Like melanose, it lowers the market value of the fruit. It will be noticed that the round sunken spots are large and conspicuous, and seriously mar the appearance of the fruit. These pustules give rise to a multitude of spores (seeds) of the fungus, and as these spores germinate readily when they come in contact with the fruit, the disease spreads very rapidly; thus fruit that was perfectly clean and free from disease, as far as it was possible to see, during the month of August, or even September, was very badly diseased the latter part of October and through November.

The disease does not appear to attack the fruit to any extent till it is thoroughly ripe, when it spreads very rapidly, greatly disfiguring the fruit and rendering it more or less unsaleable; in fact, very badly infested fruit falls from the tree and is valueless. The disease spreads very rapidly amongst ripe fruit. As the disease apparently confines its attack to ripe fruit, the treatment that will probably be most efficacious will be spraying the fruit at intervals of ten days or two weeks at the time the fruit is most liable to attack—say from the middle of August to the end of September for the county of Cumberland—with a fungicide which will destroy the spores of the fungus; or if it does not actually destroy them, prevents their germinating. The best remedy to use for this purpose will probably be

ammonia, carbonate of copper, prepared as follows:—

— Directions for Making Ammonia-carbonate of Copper.—

Formula: Copper Carbonate ... 5 oz.
Ammonia (Liquor ...
Ammonia sp. gr. .880) 3 pts
Water ... 45 gal

Make a paste in a wooden bucket of the carbonate of copper and a little water. Add the ammonia, which will dissolve the paste, and then dilute to forty-five gallons.

Copper carbonate is obtainable from wholesale chemists, but is not stocked in very large quantities, as there is little demand for it. The price is 1s. 9d. per lb., in 7lb. lots.

Owing to the difficulty of obtaining carbonate of copper in smaller towns, as well as the high price usually charged for it, the Department recommends that the fruit growers prepare it.

The following is the method given by Pierce:—

‘In a barrel dissolve 6 lb. of copper sulphate in 4 gallons of hot water. In another wooden vessel dissolve 7 lb. of washing soda or sal-soda, in 2 gallons of hot water. The soda should be clear (translucent), and not white and powdery as it appears when air slaked. When cold pour the soda solution slowly into the copper solution. As soon as bubbles cease to rise fill the barrel with water, stir thoroughly, and allow the mixture to stand over night to settle. The next day syphon off all the clear liquid from the top with a piece of hose, fill the barrel with water, stir thoroughly, and allow it to stand a second night. Syphon off the clear liquid the second day, fill the barrel with water, stir, and syphon off the clear liquid once more the third day. Now pour out the wet sediment from the barrel into a crock or other earthen dish, strain out the excess of water through a cloth, and dry slowly in an oven, stirring occasionally, if necessary, to overheating. Prepared in this manner there should be obtained, if none of the sediment in the barrel be lost, about 2.65 lb. of copper carbonate.’

The cost of preparing carbonate of copper by this method will depend on the

cost of the sulphate of copper and the sodium carbonate (sal-soda or washing soda). The present price of copper sulphate is 3d. per lb., and washing soda 2d. per lb.; thus the cost will be as follows:—

	s.	d.
6 lb. of Copper Sulphate, @ 3d.	1	6
7 lb. of Sodium Carbonate @ 2d.	1	2
	2	8

As these ingredients will make 2.65 lb. of the carbonate of copper, the cost will be approximately 1s. per lb.

The advantages of making it at the orchard are twofold; firstly, the sulphate is obtainable almost anywhere, thus saving delay, and secondly, the cost is less.

Very little time is taken up, as there is no continuous stirring or watching as is the case with some mixtures.

In addition to this spraying of the ripe fruit, it is advisable to give the trees a thorough spraying with Bordeaux mixture as soon as the crop is gathered, as this spray will destroy loose numbers of spots that would remain on the trees till the next season.

The following is the method of making this spray:—

—Directions for preparing Bordeaux Mixture.—

Formula: Copper Sulphate (blue-stone) ... 6 lb.
Lime ... 4 lb.

made up with 22 or 45 gallons of water, according to the season, the smaller proportion being the winter dressing.

—Copper Solution.—

It is immaterial whether hot or cold water be used to dissolve the bluestone. If the mixture is to be made in a hurry, it is best to boil the copper sulphate in water. If there is plenty of time use cold water; but in this case the bluestone must be suspended in a porous bag (bit of muslin or sacking) as near the surface of the water as possible. If the copper salt is thrown into the vessel, and water poured on the top of it, it will not dissolve in a week. When suspended as described it should dissolve in about twenty-four hours.

The sulphate of copper solution when

made must be diluted largely before the lime solution is added to it. This is a very important point. If the copper solution is too strong, the precipitate formed is thick and heavy, and liable to clog the nozzle of the spray-pump. If the copper solution is made by dissolving the bluestone in a small quantity of hot water, it should be diluted to 20 gallons before adding the lime.

— Lime—

The lime, which should be freshly burnt, is slaked with a small quantity of water. Slaking on a board is recommended rather than in a cask, because if the lime is really freshly burnt there will be considerable heat evolved, and the barrel may suffer. Place the whole of the lime on a board, and pour over it 3 or 4 pints of water. The lime, if it is good should become very hot, crack asunder, give off a quantity of steam, and finally crumble into a fine white powder. This is now emptied into a barrel and water added. It is not an easy matter to make the whole of the lime into a wash. It cannot be done by simply stirring about with a stick. The best way is to use a shallow tub, so that the lime may be pounded up with the water, all the lumps being broken up. Allow to settle, and pour off the milky solution through a strainer if any lumps are present (into the copper sulphate if you like, or into another barrel), and add more water, repeating the pounding until all the lumps have disappeared.

—Mixing.—

The mixture must be made by pouring the lime-water into the copper solution and not by adding the copper solution to the lime-water.

—The proportions of the Ingredients.—

The proportions above given provide ample lime to more than neutralise all the copper sulphate; in fact, there is more than twice the quantity required to convert the copper into the hydrate, provided, firstly, that the lime is pure; secondly that it is freshly burnt, and thirdly, that the lime is really all made into wash.

With regard to the latter point, instructions are often disregarded, and in many cases not more than a quarter or

half the quantity of lime recommended becomes finally combined with the copper.

If, in addition to this, the lime is not pure, and has been burnt some time before being used, it may easily happen that instead of the above quantities of lime being in excess of what is required, they may be altogether insufficient for the purpose, and that the solution may contain free copper sulphate. Assuming that free copper sulphate, even in small quantities, does 'burn' the foliage, and that it is undesirable to have any in the mixture on this account, it appears preferable to have no fixed quantity of lime, but simply to have a definite quantity of copper, and to add the lime until the copper is neutralised. This is the plan recommended in the latest Bulletins of the United States Department, and is described in detail by Dr. Cobb in the *Agricultural Gazette*, April 1897.

In order to know when the copper sulphate is destroyed, the readiest test is ferrocyanide of potassium; but it is important to remember that at a certain point ferrocyanide ceases to give the characteristic colouration (in such a solution as we are dealing with), although there is still unaltered copper sulphate in solution. In other words, the solution may contain free sulphate of copper, although the ferrocyanide test, applied as directed, does not show it. Therefore it is important to remember that the mixture is not ready for use when ferrocyanide no longer gives a red colour, but that a quantity more lime (even half as much again) must be added.

Instead of ferrocyanide, a rough test to show when sufficient lime has been added consists in placing a clean knife-blade in the mixture for a few minutes. If there is no red stain on the knife-blade, the copper solution is neutralised. When this point is reached, add some more lime.

—Vessels Employed.—

For the copper solution, wooden vessels are preferable, though copper vessels may be used. Iron vessels should be avoided. For the lime, wooden tubs or barrels. Do not leave the mixture in the spray-pump

as it will slowly attack the copper; but when the spraying is finished, pour it away and wash the pump and hose well with water.

—Purity of Ingredients.—

Sample of 'bluestone' are often received which contain a quantity of sulphate of iron. This adulteration can only be effected by dissolving copper sulphate and sulphate of iron, mixing the solutions, and allowing them to crystallise out. Such a method is much too elaborate to be carried out on a small scale, and there must be more of the stuff about. The following hints will enable any one to suspect such a compound. Bluestone should be in the form of dark-blue crystals (the adulterated mixture referred to is light-blue, like sulphate of iron). They dissolve completely in water—readily and completely in hot water or water to which any acid is added.

In order to test its purity still further add ammonia. A pale-blue precipitate is formed, which dissolves to an intense blue colour. This solution should be perfectly clear, and leave no sediment on standing. If a reddish sediment settles, it is due to the presence of iron.

Lime:—The best freshly-burnt stone lime only should be used. To test it, place a few lumps in a small heap and sprinkle with water. The water should be absorbed by the lime, when the latter gradually falls to pieces, becoming very hot in the process, and given off a quantity of steam. It gradually crumbles to a fine, white powder. If it does not get hot enough to give off steam, it has not been freshly burnt.

The addition of molasses has been advantageous in the preparation of Bordeaux mixture. Molasses helps the mixture to stick to the foliage, and by its addition saccharate of lime is formed, so that it is easier to get a proper solution which will not choke the nozzles.

If molasses is used the proportion will be—

Bluestone	6 lb.
Lime	4 lb.
Molasses	4 quarts
made up to 22 (for winter) or 40 gallons (for summer) with water.			

—The Damage done.—

The amount of damage done by this disease is variously estimated, but is, on the whole, perhaps exaggerated. According to the observations of Dr. Cobb, it causes much less loss than Melanose though in some orchards the Black Spot predominate, and in such is responsible for much damage.

—Victorian "Journal of Agriculture."

WIT AND HUMOR.

'Have you noticed,' said a clubman, 'that poets almost invariably refer to the earth as 'she'? Why should the earth be considered feminine?'

'Perhaps because nobody knows just how old it is!' rejoined a fellow-member.

Two village worthies were discussing a mooted point in grammar as to whether a hen 'sits' or 'sets' when she takes to her nest.

'Seems to me it's a heap more important,' interrupted a bystanding farmer, 'whether she 'lays' or 'lies' when she cackles.'

Mrs. Von Blumer—'Dear, Dear, I dropped my diamond ring off my finger this morning, and I can't find it anywhere'.

Von Blumer—'You needn't worry, dear. It's all right. I came across it in one of my trousers pockets.'

Footpad—'Fork over your money, now, or I'll blow your brains out!'

Whoopler—'Blow away, my dear fellow! A chap can get along in New York without brains, but he cannot without money.'

'If you 'and me your bag, madam,' said an obliging cabman, 'I'll put it on top.'

'No, thank you,' answered the lady getting into the vehicle; 'your poor horse has quite enough to drag as it is. I'll take the bag on my knees?'

'Well' remarked the comedian, who had been promised a small part after being idle half the season, 'even a small role is better than a whole loaf.'

'Talking of ants,' said an American casually, 'we've got 'em big as lobsters out West. I guess I've seen 'em fight with long thorns, which they used as lances, charging each other like wild savages.'

'They don't compare with the ants I saw in the East,' remarked a listener. 'The natives have trained 'em as beasts of burden. One of 'em could trail a ton load for miles with ease. They worked willingly, but occasionally they turned on their attendants and killed them!'

'I say, friend, what sort of ants were they?' asked the first speaker.

'Eleph-ants!' was the reply.

She—'Putting a pin in the cushion of a seat is an old joke.'

He—But it hasn't lost its point yet.

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CITY, close Hanson Street—Detached stone house, 4 rooms, etc. £315.

CITY—Investment, £75 per annum for £1,200. Building could be put there for £1,500 and land given in for nothing.

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THE FARM.

Farmyard Manure.

The Board of Agriculture for Ireland has issued a useful leaflet on the production, management, and use of this manure. It is pointed out that—(1) It is produced in greater or less quantity on every holding. (2) By its use the manurial ingredients removed by crops consumed on the farm may be returned directly to the land. (3) It forms the basis of most systems of manuring. (4) It is suitable for application to practically every crop. (5) It has a most important influence on the physical condition of the soil.

Composition of Dung.—Dung is a complete manure—that is, it contains all the elements of plant food likely to be deficient in a soil—namely, nitrogen, phosphates, and potash. Although the quantities of these substances found in farmyard manure are small as compared with the amounts contained in artificial manures, this deficiency is in a large measure made good by the heavy dressings of dung it is customary to apply. Dung differs from artificial manures in several respects:—(1) the nitrogen, phosphates, and potash in it are present as much more complex compounds than they are in artificials, consequently the effect of a dressing of dung is spread over a longer period. (2) Farmyard manure has a beneficial influence on the physical condition of the soil. This effect, not obtained by the application of artificial

manures, has an important bearing on soil fertility. Dressings of 'long' dung render heavy retentive soils more friable and pervious to air and water, drainage is facilitated, and the land made easier to work. On light land, the application of well-rotted dung increases the retentive power of the soil for moisture and plant food. It is an important point in favour of dung that by its use the fertility of a soil can be maintained without the disadvantage of diminishing the stock of vegetable matter, such as occurs when artificials are used exclusively.

Liquid and Solid Manures Compared.—The liquid portion of farmyard manure is more valuable than the solid since it contains a greater proportion of nitrogen and potash, and, furthermore, the ingredients in it are in a more readily available and quicker acting form. Manure from which the liquid has been allowed to escape is much reduced in value, as most of the nitrogen and potash has been lost.

—Conditions Affecting the Quality of Farmyard Manure.—

Farmyard manure varies considerably in quality owing to the widely differing circumstances under which it is produced. The chief conditions which affect its quality are worthy of consideration, and will be briefly discussed.

Kind of Food Used.—The greater part of the manurial ingredients contained in foods are voided in the liquid and solid excrement. The average proportion of

the total of each of the manurial ingredients consumed in food which pass into the manure are estimated as:—Nitrogen, about 75 per cent.; phosphates and potash, about 90 per cent. respectively. Since the greater part of the manurial constituents of dung are derived from food, it is evident that the quality of the feeding stuffs used very largely influences the quality of the manure. Foods such as cotton cake, linseed cake, &c., rich in fertilising ingredients, produce good dung.

Kind and Age of Animal.—Young animals making rapid growth and cows in milk extract greater quantities of the valuable ingredients from food than do fattening animals or working horses, and consequently the manure derived from young animals and cows in milk is poorer in quality than that voided by fattening cattle or working horses. It is estimated that a cow in full milk will extract from food four or five times as much nitrogen, three or four times the amount of phosphates, and about ten times as much potash as a fattening bullock fed on a similar ration.

Litter.—Litter influences the character of farmyard manure in several respects. In the first place, the physical effects of dung, to which reference has already been made, depend mainly on the kind and amount of litter mixed through the manure and its state of decomposition at the time of application. Bulky litter which is but slightly rotted has the greatest physical effect on stiff soils, whilst the reverse holds good in the case of light soils. The materials used as litter of which straw and peat moss are in most general use, contribute in a small degree only to the chemical composition of the manure, and if used much in excess of the quantity required for absorbing the liquid the resulting product will be more bulky but less concentrated than where the amount of litter is restricted.

Fresh and Rotted Manure.—Even under the most favorable conditions an appreciable loss of nitrogen occurs during the storing of dung, but provided the manure has been so treated as to reduce waste to a minimum, the smaller bulk of rotted manure will contain most of the nitrogen and practically the whole of the

For GOODNESS Sake Use
VICEROY TEA.

other manurial ingredients originally presents in the fresh material; furthermore, the ingredients in manure rotted under such conditions will be more readily available as plant food.

Storage.—The method of storing farm-yard manure has great influence on the final quality of the dung. No matter how rich the solid and liquid excrement may be in the first instance, a large proportion of the valuable ingredients of the manure are liable to be lost by subsequent bad management. Whatever may be the conditions under which dung is made and stored, care should be taken to prevent—

1. Loss of the liquid by drainage, for the reasons already indicated.

2. Overheating, which drives off much of the nitrogen from the manure.

The following precaution for preventing loss from farmyard manure in either of the two ways mentioned are applicable to all conditions under which dung is produced.

The manure from different classes of stock varies considerably in character and quality. Thus, horse manure is rich, dry, and in bulk quick to ferment and overheat. On the other hand, manure from byres and piggeries is less concentrated, contains more moisture, is cold, and ferments slowly. A manure evenly rotted and of uniform composition is secured by mixing the dung from each class of stock together. It is a bad practice to keep each kind of manure in separate parts of the dung heap.

The manure should be spread over as little space as possible, kept well compressed and moderately moist. In covered yards, where cattle or pigs are kept on the manure, these conditions are easily attained. Open heaps, however, require more attention, and the manure should be compressed by wheeling each barrow load of dung over that already in the heap.

The bottom of the heap should be covered with a layer of some absorbent material such as bog mould, rough litter, &c., and a quantity of such substances also kept round the heap to retain the liquid; this material should be thrown up

on the heap as it becomes saturated, and then replaced by a fresh supply.

Site of Manure Heap.—The manure heap must necessarily be situated convenient to the farm buildings, and consequently the choice of a site is often restricted. The most favorable situation is on level ground where there is small chance of water gaining access to the heap from springs, higher ground, or roofs of buildings, or of the liquid draining away from this manure.

Bottom of Manure Heap.—The bottom of the heap must be impervious to liquids. Concrete or hardbricks laid on edge make excellent floors, which in addition to being water-tight afford a hard surface for carting. A layer 8 to 12 in. thick of well-consolidated clay makes a cheap and in many respects a suitable floor. The bottom of the heap should have a distinct slope backwards, especially when there is a retaining wall at the back against which the manure can be compactly built.

Working the Goat.

Some three thousand angora goats are to be herded out on the brush-covered foothills of California for two years beginning this Spring; the experiment is unique both as a stock raising proposition and as an engineering and tree culture problem. The goats are to eat their way through mile after mile of bushy chapparal, starting from defined trails about eighty rods apart. It is expected that the wide lanes opened out by the goats will serve as ideal fire protective lines and also open up the dense undergrowth for the planting of merchantable trees. This work is being done under the care of the United States Government, and if successful, will be extended to other national forests.—Florists Exchange.

The area under wheat in New Zealand was 252,391 acres, and the estimated yield 8,328,903 bushels, an average of 33 bushels per acre. The area under oats is 403,037, and the estimated yield 17,095,554, an average of 40 bushels to the acre.

Miscellaneous Items.

Good teams are essential to good farming.

The colt should be taught to eat well before weaning.

If a horse's legs are scarred, look out for a kicker or a stumbler.

A horse's mouth is not a sure index of his age, especially if he is over six or seven years old.

Sheep require the constant care of someone familiar with their needs and habits if they are to be kept in large numbers.

There is no more important qualification required in heavy draught horses than that they should possess good walking experience.

It is a common practice to serve fillies early, and if well mated the stock are quite as large and powerful as those from mares of an older age.

Mr. Sid. Kidman says that the English Company which had bought Victoria River Downs, the largest cattle station in the world, would take delivery at the end of May. There were 80,000 head of cattle on it.

How many farmers count the profit they gain by having their children well-cared-for in the clean, bright country, free from the snares, sins, and distempers of a city, with an equal chance to learn in the country schools, which are to-day as good as any in the city.

The man who builds up to-date, modern buildings, cement floors in all stables, piggery, and hen-houses, saves all manure, solids and liquids, puts it on the land before the goodness goes down the brook, keeps buildings warm, his stock in comfort—there is no hard times on that farm.

Farmers should study how to raise farmers on the farm. Sometimes a farmer thinks that if he can raise a doctor or a lawyer he is doing well, but he should remember that some of the noblest and most successful men in the nation are farmers. The farmer may not become vastly wealthy, but wealth is not the measure of success.

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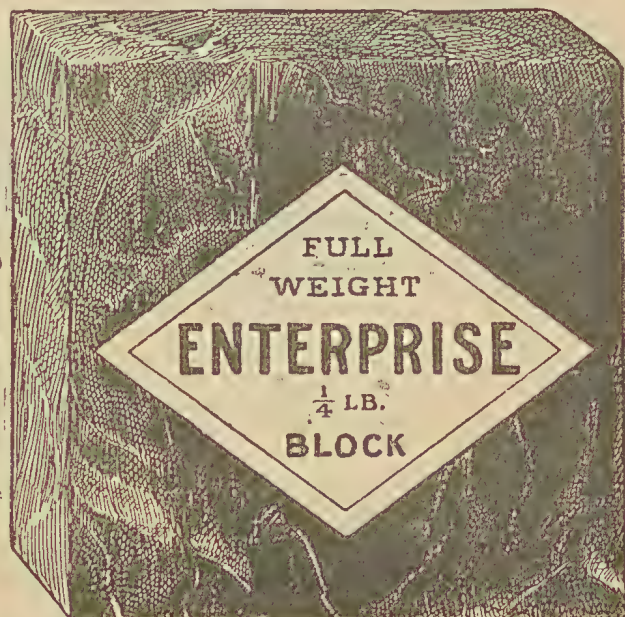
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Choosing a Dairy Bull.

That the bull is at least half or three parts of the future herd is an axiom which is unanswerable, and it is not only necessary to use a thoroughbred bull but to know his ancestors for three or four, or even five, generations past. It is not sufficient to know what his dam is. Succeeding generations of his dam may show improvement, but not from her own qualities alone. It comes from her inheritance, and that inheritance will very often in the bull come from three or four generations back. As to the breed of bull, this depends very much on the character of the country. For instance, it is no use putting Jerseys on swampy country, and at the same time it is of no use putting large bodied shorthorns on to pasturages where there is not enough grass to feed them, for when you have large-framed beasts you must have plenty of herbage. Each dairyman must decide on the class of cattle best suited to his own circumstances. A common mistake with dairyman is to change their breed. If the land is most suitable for Jerseys, get a bull of the best Jersey strain. On the other hand, if the land is both low and swampy, Ayrshires will generally be found the most useful, and whatever breed is chosen stick to it, unless, of course, the results turn out unsatisfactory. There are many who prefer the milking Shorthorn, and where there is plenty of rich pasturage this breed may pay best, as the steers can be fattened off and add greatly to the profit of the herd. The dairyman, however, with a small herd and a limited area of land will do well to stick to one of the two 'dairy breeds,' and so, whatever may be the breed of his cows, he may by using pure bred bulls, and always of the same strain, appreciably improve his herd, and with the continued use of pure-bred bulls on the heifers thus bred it will certainly be astonishing if a first-rate dairy herd is not collected in the course of a few years. There is another phase of the subject which is worthy of attention, and that is in-breeding. This practice has been too long and persistently tried by the best breeders the world ever saw to need much argument, as all the best cattle in England and America are a result of this way of

breeding to intensify and perpetuate the desired qualities in the offspring. It is well within the reach of every dairyman to grow and develop choice grades that for all practical purposes would be as good as the thoroughbred animal from which the cross was instituted, and maintain a high standard in his dairy by the careful selecting and mating of his breeding animals. There are two axioms that should always be remembered: Cull out all the indifferent milkers, of whatever breed they may be, and keep for breeding only those heifers whose dams were remarkable for their milk and cream production.

—'Queensland Agricultural Journal'.

Giving the Dairy Cow a Chance.

The cow utilises her food either for the elaboration of milk or the taking on of flesh (says a dairyman in the 'Prairie Farmer'), and she yields nothing in either direction except by food taken in at the mouth.

If of a dairy temperament it is used for the secretion of milk and, up to the limit of her capacity, she will respond in the milk pail in proportion to the amount supplied at the feed rack, hence if it pays to feed at all it pays to feed liberally, quite up to the limit of her capacity, and it will be generally noted that it is the persistent and not the spasmodic liberal feeder that scores the best results.

But there is another point involved in this feeding problem that necessitates that the feeder should know the different individuals in the herd. No two cows are constituted with exactly the same dairy temperament. If some become too much reduced in flesh, the remedy will not necessarily be more feed, but a reduction in the amount of protein and an increase in the amount of carbo-hydrates; and on the other hand, if some become too fleshy, an increase in the protein and a reduction of the carbo-hydrates is advisable.

Many cows will be found, however, that will yield but little milk and take on flesh regardless of how the ration is balanced. The composition of the feed has a great influence even with such animals, but they should be eliminated from the herd for they will be found wanting in the balance, and so the importance of closer settlement is suggested.

The dairy farmer has a friend for his financial advancement in the typical dairy cow, and he has two more friends in the Babcock tester and the scales that hang in the cow barn, which with a little mathematical calculation, will show the money-earning capacity of the different members of the herd, aid in drawing the line be-

tween profit and loss, and afford advantages in weeding out and selection that we can not well do without.

It is simply a business proposition for the dairy farmer to know with which of his cows he can exchange his food stuffs for her milk, with a margin of profit for himself.

Dehorning Dairy Cattle.

A PAINLESS OPERATION.

Experiments were recently made at one of the American agricultural stations with a view of ascertaining whether the operation of dehorning dairy cows was painful. In several cases the per cent. of butter fat had been noted at each milking for a few days before and after dehorning, and from these a fair estimate was arrived at of the effect of dehorning on the dairy cow.

At one experiment station a record of ten cows were kept. Each cow was tested two milkings before dehorning and four milkings after dehorning. In every case but one the milk tested much lower at the milking immediately after dehorning. The test gradually increased, until it was much higher than it had been in the milkings previous to dehornings, and the actual amount of butter-fat produced by the cows was as much or more than it would have been had the cows not been dehorned.

At a another time, at the same station, 12 cows were dehorned, with a loss of 5 per cent. in the total yield of milk in six days after dehorning and a gain of 4 per cent. in the total amount of fat produced in the same time. A record of the weights of the cows before and after showed practically no loss due to the operations. At another station 14 cows were dehorned. Most of them fell off in their milk slightly, but gained in per cent. of butter fat, and at the fourth milking all were back to their normal flow. The 14 cows made about 1lb. less in the two days following dehorning than they had made in the two previous days.

From these reports it appears that there is a very small percentage of loss in the total amount of the milk produced, and very little, if any, loss in the total fat produced, in the first few milkings following dehorning. In the majority of recorded trials the cows came back to their natural flow of milk in less than a week, often in two days. Judging from this the pain suffered by the cow must be slight.

There should be no smoking about where the milking is done, or about the milk at any time. Milk absorbs the bad qualities of tobacco smoke quickly.

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Potting Butter.

The successful potting or storing of butter in a preserved state for use some months hence depends for its success on:—

(a) Putting down only sound, fresh butter.

(b) The method of storage adopted.

Really, the prime essential is that the butter should be of tip top quality.

It should be made on up-to-date lines—i.e., churned only into small grains about the size of rice, and in this state washed four or even five times with plenty of cold water, changing the water each time.

This will wash out the butter-milk and ensure that the butter is in a condition to keep properly.

The next point of great importance (says C. W. Walker-Tisdale, in the 'Farmer and Stockbreeder') is to dry the butter thoroughly by working it even to excess, and so spoiling the grain—get the butter thoroughly dry. Prior to working the butter, the salt, at the rate of 1 oz to each pound, must have been added.

The receptacles for storing the butter in should be glazed earthenware crocks. Scald these out well, and then dry and cool them. Sprinkle a little dry salt in the interior, and then pack in the butter. A butter beater, which consists of a

large head of wood on a stick, should be used, and the butter rammed well home with it.

The butter in the crock must be in one solid mass, with the air excluded.

On the top of the butter place a layer of a couple of inches or so of dry salt, and then over the surface stretch bladder or parchment, and tie up.

News and Notes.

The opinion generally held that poor milk is always watered is based on fallacy.

* * * * *

It has always been recognised that a healthy, profitable cow must be at least a fairly good milker.

* * * * *

A sun bath is good for all the pans and other tools and receptacles used in butter making; it kills the bad bacteria.

* * * * *

Many herds of dairy cattle have given proof that milk, meat, and early maturity are combined in the shorthorn breed.

* * * * *

The cow shivering out of doors during the cold night or drizzling rain is shaking butter-fat out of her milk and money out of her owner's pocket.

The United States Department of Agriculture considers that a cow to be profitable should produce 6,000lbs. (2 800 quarts) of milk yearly without being forced. A cow ought to produce 300 lb. of butter yearly.

* * * * *

Lucerne hay is one of the best foods for the milking herd, because it contains all the elements of which milk is composed. In combination with silage made from maize, it is as good a ration for the dairy herd as can be provided.

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Phalaris Commutata.

The Monarch of Grasses.

Thorough Frost-resisting; Stands Feeding or Cutting; Grows best in Winter. Attains a Height of 7 feet. Excellent for all Climates.

Extract from "The Australasian," May 18, 1907.

Phalaris commutata, a grass, which has lately given rise to a good deal of interest, and has been extensively boomed, is a variety which seems to possess many characteristics which should commend themselves to stockraisers, and in appearance is a grass which seems to justify the glowing descriptions generally given of it. If the sample grown by Mr. J. Furphy of Hill End, Moe, represents the usual growth under ordinary conditions, then undoubtedly *Phalaris commutata* will be a valuable acquisition to our fodder crops. The sheaf of hay shown by him, which he says represents the growth of one root, was a perfect sample of hay—juicy, of good color, and sweet to the smell. It certainly looks a hay that should be relished by all kinds of stock. *Phalaris commutata* is a native of Italy. It was introduced into Queensland in 1884 by Mr. Harding, the curator of the Toowoomba gardens, being one of many varieties of grasses obtained by him from America. What he says of it appears to have been borne out by all others who have tried the seed. "The seeds" he said, "were sown in drills, and all germinated and made good growth until the first frosts, which killed all except one, *Phalaris commutata*. Requiring the ground space for other purposes, I removed this grass, and imply dumped into a corner of the nursery taking no particular care of it. Al-

though the ground was very hard, it made tremendous growth in 1 year, germinated where it had fallen, and in twelve months grew into clumps 2ft across and 5ft in height, with nice, soft, succulent blades, and flowering stems. This has been cut two or three times in the year. The roots are fibrous, and the foliage very dense, and a bright green in colour, especially during the winter. In appearance, the leaf is similar to that of *P. Canariensis*, but the plant is much more productive. Visitors from all parts of the Commonwealth, who were shown this grass, were surprised how it stood the drought. To graziers and dairymen I particularly recommend it, being particularly productive throughout the year. It is easily propagated, and when once started, it will soon produce seed which, if allowed to shed, will germinate freely. The seed is small and glossy. During the '93 drought some roots were in a bag for six weeks, and the only difference it made was that the foliage was slightly yellow, though the plants kept growing all the time. It seems to like all kinds of weather. and from the rapidity of its growth it excels all other grasses I have had anything to do with. What it would be if properly cultivated it is hard to say, but it is a very desirable grass to introduce and distribute. By its own self sowing, it has covered a large amount of space in the nursery."

How to Plant it.

Mr. Furphy, whose experience of the grass corresponds with that given by the Queensland botanist, states that his trials have been made on poor, light soil, and he estimates that if properly attended to and given a light dressing of superphosphate, it would yield 8 tons of dried hay to the acre per annum. These are very big figures, and the grower, who got half that return should be well satisfied that he has found a valuable new fodder plant. "I obtained," he said, "a few plants, and transplanted at the end of April, and whilst putting them out in drills 3ft apart and 2ft in the drills by the end of June they had made a growth of 2ft, sending on the shoots, until by the end of the season, as many as 167 seed-stems had been produced by one plant, the height being about an average of 7ft. It was a severe winter, but not a yellow leaf could be seen." He suggests that the seed should be sown in a bed like cabbage-seeds, and when the plants are sufficiently strong, should be transplanted 3ft apart each way. Having only seen the grass in a sheaf, it is difficult to form an opinion of what it would be like for fodder purposes, but there can be no question that for hay it is admirably suited, and if it fulfils half the good things claimed for it by the grower, Australian farmers should be well pleased.

Trial Packets of Seed 2s. per oz., post free. Price per pound on application.

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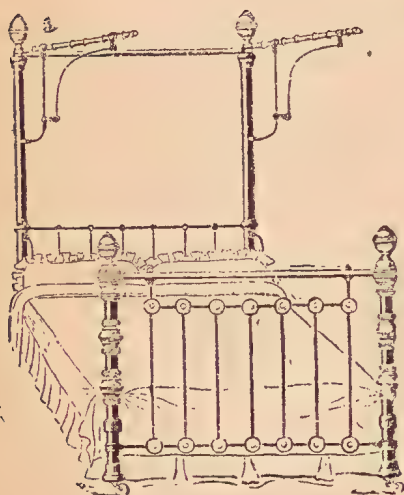
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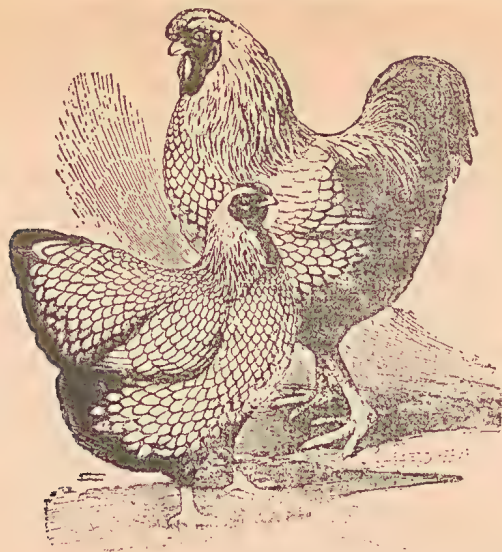
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❖ ❖ The Poultry Yard. ❖ ❖

Diseases of Fowls.

G. BRAGSHAW, in the 'Agricultural Gazette of N.S.W.'

(Continued from last issue.)

—Anaemia.—

This means a deficiency or poverty in the blood, and there are many strains or families of fowls which are thoroughly anaemic. The fowls have a pallid appearance, the comb and wattles pale, and the legs usually cold; they have a bloodless look, while the walk is listless and languid.

The causes are frequently insanitary conditions, overcrowding, innutritious food, &c. Fowls of this sort should be got rid of, treatment being both expensive and useless, for even should a cure be effected, these patched-up, doctored specimens will make wretched breeding stock.

—Apoplexy.—

Apoplexy is a diseased condition of the brain, frequently the breaking of a blood vessel, owing to undue fullness there. The breaking of the vessel allows blood to escape into or upon the brain

substance. The causes usually are over fatness, stimulating food, while some authorities say it may be hereditary. Dr Woodriffe Hill says:—'The exciting causes are, violent exercise, intense heat, derangement of the digestive organs, over-straining in laying hens, which are frequently found dead on the nest.

The symptoms are, the bird falls to the ground in a state of partial insensibility and is sometimes found dead. In cases where the fowl staggers and falls down, the simplest remedy is to pour cold water over its head, when there will likely be a recovery. Bleeding is also recommended. This can be readily done by making an incision in the vein under the wing, and taking say, a tablespoonful of blood from a full-grown fowl. Purgatives should also be given.

Apoplexy is usually associated with old fowls, often show birds, but even when cases are successfully treated, the trouble may return, and each time it is more severe. Like several other fowl troubles, the cheapest and most effective way to treat apoplectic subjects is to get rid of them.

—Ascites, or Abdominal Dropsy.—

Exhibition hens, if of good quality, unlike market sorts, are often kept till they

become diseased, meet with an accident, or die of old age.

A frequent disease, particularly in old fat specimens, is that known as 'down behind.' The Abdomen becomes very large and pendulous, sometimes touching the ground. One form of this is abdominal dropsy. The enlargement is frequently minus feathers, looks shiny, it feels soft, and is movable. The accumulation is of a thin watery nature, and is sometimes colourless, or it may be straw coloured. The causes are varied. Several scientists who have studied the disease have disagreed as to its cause; the majority however, think it arises from an escape of water from the blood vessels into the tissues or into some cavity, as the abdomen.

This form of dropsy can be relieved by a puncture with a surgeon's hollow needle, when most of the liquid will run out, but it must be remembered that this is only a temporary relief, there being always a tendency to further accumulation of the fluid. Further, birds that are dropsical have no right in breeding yard; while even if of otherwise exhibition quality, the enlargement warrants the fowl being disqualified from securing a prize.

(To be continued)

Egg-Production Extraordinary.

When interviewed by a local scribe, after reviewing in detail the results of the 1908 9 egg laying competition at Roseworthy, Mr. D. F. Laurie, the Government Poultry Expert, expressed the liveliest satisfaction at the splendid records made during the year. 'A notable feature,' he said, was that 25 pens of White Leghorns, representing 150 birds, averaged no fewer than 208 eggs per hen. Many writers in poultry journals, chiefly in England, have disputed the statement that the 200 egg hen is in existence. As against that we have the proof before us that 25 pens of White Leghorns have put up an average of 208 eggs per hen. Recently I noticed on the frontispiece of 'Poultry,' one of the best known poultry

journals in the world, an illustration of a White Leghorn which had laid 180 eggs. We have 25 pens which have exceeded that total by 28 per hen. Even the Brown Leghorns, which were poorly represented averaged 188, and the Black Leghorns 160. The Minorcas put up the magnificent total of 195, and the Black Orpingtons, which included some really good birds, finished with the respectable total of 180 eggs per hen. It must not be assumed, however, that I advocate the Black Orpington being turned into a sprinter. In my opinion only one fowl should be bred purely for egg production and that is the White Leghorn. The Silver Wyandottes came out with the satisfactory average of 153 eggs per hen, and naturally I am very pleased, because in season and out of season I have advocated the Silvers as one of our most useful all-round average breeds. The Wyandotte is essentially a farmer's fowl, not the best layer of course, but its flesh production is good, and it is an excellent table bird. A good deal of interest was taken in the Langshans, with which Mr. G. Toseland occupied fourth place in the heavy breed section. As one of the original breeds of fowls the Langshan has always been interesting to breeders. It occupies rather a unique position because it is distinct from the other Asiatic breeds, as it has white skin and white flesh.

The Moulting Period.

A natural function of bird life is to annually cast off its old feathers. This casting off is known as moulting. The process of moulting begins in the summer. The bird, by the thinning of its garments, is helped to withstand the excessive heat then experienced. Later on, and before the old plumage becomes too scanty, a crop of sprouting new feathers is to be seen in any bird that is handled. Thus it is that the old feathers discarded, the bird is prepared by new and warm plumage to bear the brunt of the change of temperature that is natural at the fall of the year.

The moulting period is therefore extended for a number of weeks, according

to the age, constitution, and treatment of the birds.

Poultry is what we are immediately concerned with. Owing to the somewhat unnatural conditions in which they are kept, and the excessive production required of them; poultry are frequently hard put to bear the transition state caused by the moulting of the feathers and the removal of their plumage. Therefore, it is the poultry-keeper's province and duty to give great attention to the stock at this particular period. With bird life brought up under natural conditions, only the robust have a chance of living. An enemy is always in waiting for the weak ones. The 'survivals of the fit-test' are not only robust, but they are not reduced by over-production, as are our poultry. A bird 'in the wild' produces eggs for two or three nests during its breeding season, but poultry are expected to lay at least 150 eggs a year. Each of these eggs will weigh quite two ounces. Therefore, at that standard of production, the hen will have produced eggs that weigh over 17lb, or, in other words, quite four times her own weight. Think, then, what a strain it must be to the fowl, after having produced so much, that she then has to undertake the replenishment of her wardrobe from her own body.

Fortunately, the function of moulting and the renewal of the plumage is a gradual one. And this dual function can be materially assisted by the intelligence and thoughtfulness of the poultry-keeper.

The feeding of the fowls during the moulting period is of great importance because the foods in some cases are specially adapted for the casting off, while some are for the making of feathers. It is a curious fact that while some experts advocate a reduction of rations to moulting fowls, on the other hand, others are in favour of a generous diet. Take for instance, what is advocated by the Central Experiment Station, Canada. The management there removes the male birds and allows the breeding stock and all other hens to run promiscuously in the field, in the rear of the poultry-buildings where there are grass, clover, and shade;

three important essentials. At this time the rations were reduced one half. The effect was immediately to very much reduce and ultimately stop egg-production which was the desideratum. The half-rations were continued for two weeks, when full quantity was resumed as follows:—Mash, composed of coarsely ground oats, two parts; shorts, one part; gluten meal, one part; with beef scraps in proportion of one pound to 15 fowls. The mash, which in summer was mixed with cold water, was fed three times per week. At times a small quantity of linseed meal was added. The beef scraps were used in lieu of cut green bones because it was not convenient to procure the latter. If mash was fed in the morning, wheat or oats, or both mixed, were given in the afternoon, or vice-versa. On such days as mash was not given grain took its place.

A correspondent in Nova Scotia, writing to the central experiment station, says he has reduced the moulting period by feeding in generous quantity, beef heads boiled, broken into small pieces, and put through his bone-cutter. As a result of this treatment there was hardly any cessation of laying.

No one system of treatment will be sufficient for all classes of fowls, or for fowls that are kept in various climates. Therefore the moulting period must be helped by the intelligence and thoughtfulness of the poultry-keeper. Let him bear in mind that the strain on the constitution, and the waste of the bird's resources have to be relieved and renovated. This may be done by generous feeding, or, as suggested by one of the authorities quoted, the stoppage of egg-production. In all meal foods, again some assistance may be given to the moulting, and the renewal of feathers, by adding frequently boiled linseed, or linseed meal and flowers of sulphur. Then the fowls will in most cases discard their old clothes with ease, and renew their new suits without necessary delay.

Yearling hens will moult earlier and easier than older fowls; moulting is more gradual in some fowls than with others; moulting fowls are benefited by a change of ground, and a run where green food and insects are obtainable; where insects are scarce, meat food in some form is an essential. Every effort should be made to have all fowls well and newly garbed before the frosts of early winter put in an appearance.

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The Young Folks.

Invitations.

The Daffodils are nodding;
There's a swaying of the trees;
The playroom window rattles
To the fragrant summer breeze
There is sunshine in the garden,
And the bees are all a-hum
O, hark, the invitation—
'You must come, come, come!'

The butterfly is glancing
On his wings of golden hue;
Ah! see where now he loiters
O'er that bed of pansies blue;
A moment since he hovered
At this very window-pane,
To see if we were coming
To the garden and the lane.

Hats! Hats! for those who want them,
Boots! Boots!—oh, lace them do!
Fling open doors and windows,
To let the sunshine through!
When bird and bees and blossoms
Invite us out to play,
Oh, who could well refuse them
Upon so bright a day?

Conundrums.

Why is an orange like a church
steep'le?

Because we have a peal from it.

What word is that to which, if you add
a syllable, it will make it shorter?

Short (short-er).

What is the difference between a cat
and a speech?

The one has its caws at the end of its
paws, and the other has its pauses at the
end of its clauses.

Why is a fireplace like Westminster
Abbey?

Because it contains the ashes of the
grate (great).

If all the vowels could speak, why
would O only be able to make itself
heard?

Because all the rest are in-audible.

Birds' Nests that are Eaten.

Doubtless many of our readers have
read of birds' nests which are eaten or
made into soups, but probably few have
any idea what they are like.

The esculent swallow which build these
nests, inhabit Borneo, Ceylon, and
Java, and in appearance closely resemble
the swallows so well known to us.

The nests are built against the sides
of precipitous rocks, and are composed of
a sticky fluid supplied by glands below
the tongue.

Nothing else apparently enters into
construction beyond this gummy
secretion. The birds take infinite pains
in making these dainty little structures
for they are composed entirely of these
gummy threads carried backwards and
forwards. These threads quickly dry and
harden, and the little home becomes
firmly attached to the face of the rock. A
nest takes about two months to construct;
each contains two eggs, pale and trans-
lucent like the nest itself.

Collecting these nests is dangerous
work, but nevertheless forms quite an
industry. Men are lowered down the
face of cliffs by means of ropes; they
knock out the nests and place them in
bags, which are then drawn to the top.

When placed in hot water the nests
soften and swell; it is claimed they make
excellent and nourishing soup. They are
so much sought after that they fetch a
high price and are esteemed a luxury.

Lady: What is it, little boy?

Little Jim (carrying a cat): I came to
claim the reward you offered for the return
of your canary.

Lady: But that is a cat.

Jim: Yes; but the canary is inside.

.....

'Mother,' said a little girl, 'may I go to
the fancy-dress ball as a milkmaid?'

'No,' replied her mother, 'you are too
small.'

'Well, can't I be a condensed milk-
maid?'

.....

'Are you going to spend your summer
at the seaside?'

'No; I fear I shouldn't enjoy myself.'

'Why not?'

'Well, I haven't anything to spend but
the summer.'

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4/; posted 4/4.

Works by L. H. Bailey.

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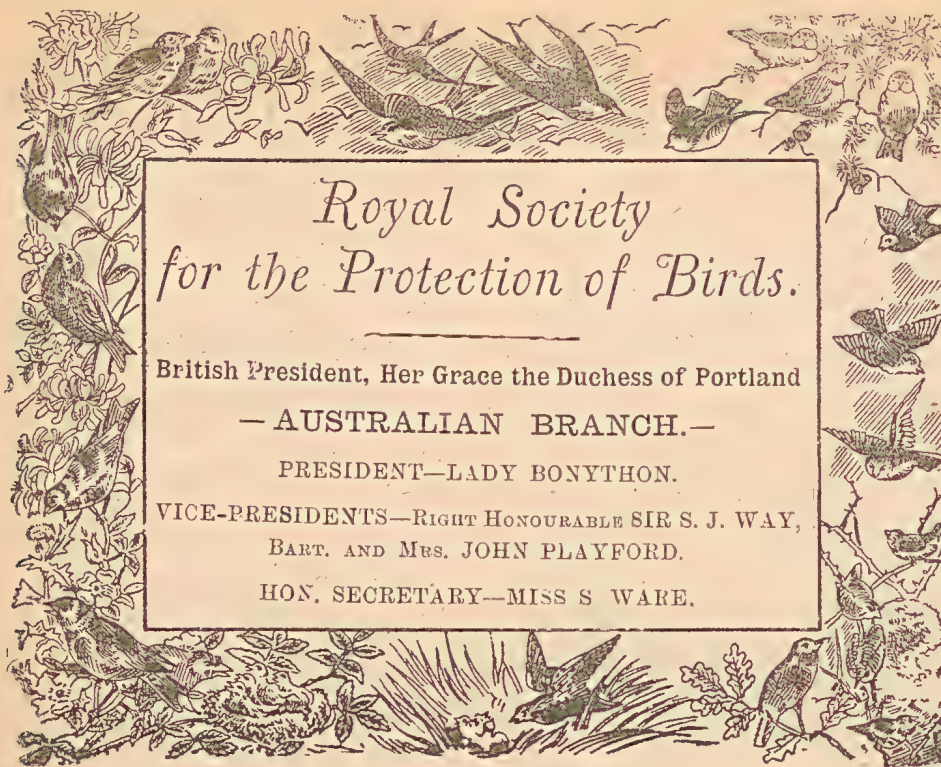
Garden Making, 11th ed., 1907. 5/; posted,
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Horticulturists' Rule Book, new and
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36 King William Street. 36.



Since Mrs. John Playford's retirement (August 31st, 1904) the local Branch of the above Society has been practically in abeyance. A new Secretary has, however, now been appointed in the person of Miss S. Ware and it has again resumed activities towards the discouragement of the wanton destruction of birds, and will interest itself generally in their protection. Her Grace the Duchess of Portland (President of the British Branch of the Society for the Protection of Birds), in a circular issued recently, calls special attention to the very startling fact that numerous beautiful birds are being exterminated to supply the demand for feather millinery. In it she says:—'I feel sure that the demand has arisen from total ignorance of the sacrifice it entails, and that no one with true appreciation of beauty will tolerate this wholesale destruction of birds, or countenance the continued use of rare feathers for personal adornment. If the ruthless cruelty entailed in procuring feathers at the nesting time does not suffice to plead for a complete reversal of opinion on the subject, surely the thought of a world bereft of its birds of plumage may well stimulate us all to co-operative actively with the Society in discouraging the use of feathers for purposes of ornament.'

With all the foregoing remarks every right-thinking person will heartily coincide, and it is our intention to devote a series of articles dealing with the subject. The Society is now calling for subscriptions from the members. Any Person may become an Associate on paying the sum of Sixpence (Children under 14, Threepence), as a registration fee, and agreeing to the objects of the Society. Associates may become Members on agreeing to pay not less than One Shilling annually. The money (or the equivalent in stamps) should be sent to Miss S. Ware, 112 South Terrace E., Adelaide.

The Bird of Paradise.

The month of May, 1895, was the culminating point of a deplorable fashion in London. Few bonnets and hats were to be seen without the adornment of a graceful spray of soft, fine plumes, with drooping or curly tips. The beautiful 'Bird of Paradise' feathers could be purchased in quantities at every milliner's shop, and the assurance that they were real, which there is little reason to doubt, could usually be elicited. Mixed in the same spray, and forming a contrast to these soft plumes, might be seen the

delicate Osprey tips, which, to the shame of womanhood, have so long been in fashion, and, in spite of the indisputable cruelty involved in obtaining them, are still largely used. It can be stated on reliable authority that, during the season, one warehouse alone of the many that are engaged in the traffic so detrimental to bird life, disposed of no less than 60,000 dozens of these mixed sprays. What can be more significant of the wholesale destruction which this fashion involves, than the impression which is prevalent throughout the trade that it must soon disappear, as the supply of birds is almost exhausted.

A few words descriptive of the original owners of these plumes may not be out of place, as little indeed can be known of them by those who so thoughtlessly encourage their destruction for the sake of mere personal adornment. The Bird of Paradise most used in millinery is that obtained in the Papuan Islands and New Guinea. Mr. Wallace, in describing the *Paradisea apoda*, says: From each side of the body, beneath the wings, springs a dense tuft of long and delicate plumes sometimes two feet in length, of the most intense golden-orange colour and very glossy, but changing towards the tips into a pale brown. This tuft of feathers can be elevated and spread out at pleasure so as almost to conceal the body of the bird. The wing, breast and other feathers are utilised for making trimmings, &c., but it is these side tufts, the peculiar and beautiful characteristic of the Bird of Paradise, which furnish the plumes so conspicuous in hat adornment. In his 'Oiseaux dans la Mode,' of October 1894, Mons. Jules Forest bitterly deplores the destruction which has been going on during the last decade. He emphasises the fact that it is no longer possible to procure such perfect specimens of the Bird of Paradise as was common ten years ago, since the unfortunate birds are so assiduously hunted that none of them are allowed to live long enough to reach maturity, the full plumage of the male bird requiring several years for its development! He further states that 'the birds which now flood the Paris market are for the most part young ones, still clothed in their first plumage, which



BALLARAT GARDENS. VICTORIA.

them resolve to do what they can to lacks the brilliancy displayed in the older bird, and is consequently of small commercial value. Since January 1st, 1892 strict regulations for the preservation of the Bird of Paradise have been in force in German New Guinea, and Mons Forest appeals to the English and Dutch Governments to follow this good example.

The common sense of every thoughtful woman must at once tell her that no comparatively rare tropical species, such as the Bird of Paradise, can long withstand this appalling drain upon it, and that this ruthless destruction which merely panders to the caprice of a passing fashion, will soon place one of the most beautiful denizens of our earth in the same category as the Great Auk and the Dodo.

Civilised woman throughout the world are earnestly entreated not to countenance the sacrifice of this bird by encouraging the demand for its precious feathers. Let

hinder extermination of this 'wonder of Nature,' by stoutly refusing to wear or purchase anything purporting to have once belonged to a Bird of Paradise.

MARGARETTA L. LEMON.
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May Number of

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The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry).

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—:O:—

'Eastwoodite.'—Your query re the destruction of slugs will be dealt with in our vegetables column next month.

EDITORIAL.

After a long dry spell the winter broke in with a deluge of rain. The ground being ready for working, the gardeners have started operations with the grubber on new ground, and with the fork, the hoe, and the rake in the orchard and the garden plots. A great deal of new ground will be broken up this planting for new orchards and extension of old ones. Apple growing is becoming quite a popular industry in S.A. In several districts last season ground that had been lying waste to the extent of many acres was planted up with thousands of apple trees.

The nurseries are as full of orders as they are of young trees ready for this year's planting. In view of this we are printing this month a special article dealing with the planting of fruit trees. Our author gives some very timely advice on the handling of the young tree before it is put in the ground. By the way some laborers in orchards handle young fruit trees one would think that they were so many dry sticks made up into bundles of firewood instead of which the young trees are full of tender buds that are easily injured, and from which treatment they will take a long time to recover.

It is very often this rough treatment that stunts the tree in its early growth and the nurseryman gets all the blame for its failure. We strongly advise, then, that orchardists should keep a careful watch over the way men handle this young stuff.

In the preparation of new land for an orchard too much care cannot be exercised in the supervision of the labor put into the land. The ideal method of preparing the soil no doubt is to trench it thoroughly from two to three feet deep. This method saves a multitude of work in the after years. Too much stress also cannot be laid upon the advantages of

underdrains which can be very easily put in during the work of trenching. But this ideal fashion of beginning an orchard of from ten to twenty acres is an undertaking which very few can afford, either in point of time or money. In the first place, after the purchase of the land and of vermin-proof fencing, comes the grubbing operations, which add from £3 to £5 an acre to the cost. To do this grubbing while trenching is the easiest method, but the cost would run into four or five times the money; consequently after the ground has been made clear the plough and the subsoiler must be got to work as the next best method of preparing the soil. This should be done the season before planting, and the ground allowed to be in fallow for twelve months for sweetening and aeration.

We wish to emphasize this procedure not only for new but for old land that may have been used for other purposes, because so many disappointing failures follow on the haphazard method so frequently adopted of digging a hole and sticking the tree in it anyhow, and expecting a number of such operations to grow into an orchard. So much depends for success on the way in which a young orchard is begun that too much cannot be said to impress the beginner with a good method.

The site of an orchard cannot of course be got to order and the planter has to make the best of opportunities his land will allow, but a good eastern slope is most desirable if it can be made.

The selection of fruit trees is another very important factor in success. An orchardist should always be able to grow his own trees right away from the root, and shape the tree into a model for fruit production, always bearing in mind that the fruit itself should be grown on the tree where it is least subject to the beating of the winds, and for protection against diseases. In other words, where the fruit can be sprayed without difficulty. We have said thus much regarding apple growing because we are satisfied that this fruit will give better results than any other grown.

While believing that apples are the most generally used fruits we do not

overlook the value of pears as a product that will give better returns as the methods of export become more successful.

Plums are not always going to be the glut in the market that many growers have found them to be in the past. The improved varieties—such as Acme and Wickson—will pay handsomely for exporting when the methods improve. These are well worth growing, and now is the time for planting. In fact these two months will find hard employment for all orchardists.

† † †

Flower gardeners will be too busy for idle moments now. The secateurs will be snipping away all the surplus growth on roses, and all hard wooded plants will be licked into shape for the first rise in sap. Growers of annuals will find a list of everything to put in now to come with the bloom of the spring, and in spite of the ravages of slugs and snails amongst the tender little tempting morsels there are thousands of cottage gardeners who are prepared to take the risks of disappointments for the pleasures of succeeding with the beauties of spring blooms.

† † †

The vegetable gardeners are being catered for by the nurserymen now with early cabbage plants, and seeds of all the rooted varieties of esculent dinner-table necessities. Our articles on vegetables will be read with interest this month.

† † †

On the farm the plough is going hard for seeding operations, and the season has opened most auspiciously in this respect. The country land boom, to which we refer in another column, is still strong. There is plenty of money in the country now, and farmers' sons are looking about them for properties to start on their own account.

† † †

Dairy farming and poultry raising are still on the increase, but these are employments that require special liking as well as knowledge to make them a success. No man, or woman either, will ever make a success of dairy farming if they have not a special liking for the animals themselves.



NARCISSUS GLORIA MUNDI (INCOMPARABILIS).

The Flower Garden.

Notes for the Month.

The work of digging, trenching, remodelling flower-beds, and all necessary alterations should be persevered in whenever the weather is favorable. The planting of deciduous trees and shrubs should not be postponed later than this month. The hints given elsewhere in connection with planting orchard trees applies equally well to the planting of subjects in this department, whilst useful information may be gained from the article by an American expert on the treatment of shrubs.

Neatness and cleanliness is the principal consideration all the year round, but

at this season it is more difficult to maintain a trim appearance. Exhausted summer flowering annuals and biennials, fallen leaves, and every scrap of litter and untidy matter should be promptly carted away to the rubbish pits or heaps, where, together with the accumulating waste of the house and garden, it will be gradually converted into valuable manure.

The winter garden can never attempt to rival the summer garden in wealth of bloom and color, but it need not be wholly destitute of color. During the bulb season, which may be said to begin with the autumn Crocus, and to continue with short intervals until the last Poeticus Narcissus in the spring, no garden need look dull.

Dahlias and Cannas can now be cut down and lifted to facilitate digging, and to allow of the soil being renewed from which they have been taken. The former should be allowed to dry a little before being placed on the floor of the shed or cellar, where they are to remain for the winter. They should be carefully labelled with their respective colors as a guide in planting when the season arrives. Cannas should be divided if necessary. Michaelmas Daisies, Rudbeckia, Perennial Phlox, Helianthus, and Heliniums can also be lifted and divided annually. Lift everything that it is convenient to do, so as to enable the digging to be done more thoroughly, and the soil to be more easily renewed.

Anemones supply bright patches of color in the winter and early spring. Plant them out about three inches deep, covered by a light soil, in lines or groups as preferred.

A good sowing of sweet peas should be made now. These popular plants well repay a little extra attention given them in the way of preparing the soil. If a long row has to be sown, the ground should be trenched right through, and some well rotted stable manure placed at the bottom, or if the manure be incorporated with the whole of the soil, so much the better. Strong plants, large flowers, and a continuance of bloom should be the result of good cultivation. Seeds of pansy, columbine, hollyhock, herbaceous phlox, carnation, delphinium, and numerous other perennial and biennial plants may still be sown. The seeds may be sown in the open, but it is better to use small, shallow boxes for them. These must be well-drained and filled with light, rich soil.

Camellia plants often produce an immense number of flower-buds, and these, if left on, tend greatly to weaken their constitution. Besides, if permitted to develop, the blooms must necessarily be small. Except on strong, robust plants, only two or three buds should be allowed on a shoot. Small, stunted plants frequently show blooming buds, and these should always be removed if the life of the plant was worth saving. The superfluous buds should be removed at an

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CROYDON—3 acres close station, rising neighborhood. £150.

NORTH UNLEY—Residence, 8 rooms, bath, pantry, cellarette. Enclosed area, lavatory, stables, trapshed, 1-16th acre. Only 1-8th mile walk G.P.O., close penny section. £890.

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CITY, East Part—2 cottages, 3 rooms. verandahs, £400; rents, 14s. 6d. weekly.

PENNINGTON TERRACE, NORTH ADELAIDE—Residence, 6 rooms, bath, etc., stables, trapshed. £700.



HYDRANGEA.

All the Hydrangeas have large showy flowers. The best among the hardy kinds are the oak-leaved Hydrangea, a noble shrub, and the very familiar *H. paniculata grandiflora*.

Hardy and Ornamental Shrubs.

How to Treat Them.

In the 'Florists' Exchange' the following advice is given on this point by Mr S. C. Moon:—

I will assume that we all understand by the term 'hardy shrubs' the class of perennial, bushy plants, deciduous and evergreen, though largely deciduous, which are used for ornamenting lawns and gardens. Though most are of moderate size when planted, some of them eventually attain the proportions of small trees. The term 'hardy' will vary with the location of the planting, but will not materially affect the suggestions here presented. How to plant them will be considered in a twofold light; first, the distribution and arrangement of the plants on the lawn; second, the method of setting the roots in the ground.

— Planting in Masses Most Effective. —

As a general rule the most effective way to plant shrubbery is in masses, with not too much variety in one group. Professor Bailey says: 'The shrubbery masses should be placed on the boundaries, for it is fundamental concept of landscape gardening that the centre of a place should be open. In most places, the mass, or border planting, should be the rule, and the isolated specimens the exception; but, unfortunately the rule is generally reversed.' It is easy to see conspicuous evidences of the truth of these statements in almost any suburban neighbourhood in examples of both good and poor arrangements.

Many planters seem to think it desirable to have a well-developed plant of as many varieties as can find accommodation on the lawn in order that they may enjoy each plant individually as it

passes through its varying changes of foliage, flowering, fruitage, and leaflessness throughout the year. Such an arrangement may be appropriate for an arboretum or trial ground, and there are special charms in such a collection of shrubs as each successfully comes into bloom. But as the blooming period of most shrubs is only from two to four weeks, the beauty of foliage hues, both in the greenness of summer and autumn colourings, is an important consideration in arrangement of shrubbery groups. The introduction of bright colored foliage, such as golden elder or philadelphus, variegated weigelia, purple leaved plum and barberry, &c, is occasionally done very effectively, but more frequently the result is a conspicuous blotch amid the verdure. The handling of bright colors always requires a high degree of artistic skill, or the result will be displeasing to the most refined tastes, affording valuable object lessons to the student and gardener, but it is not the way to produce the most effective results in lawn adornment.

To quote again from Professor Bailey's essay on shrubbery: 'Plants scattered over a lawn destroy all appearance of unity and purpose in the place. Every part of the place is equally accented. The area has no meaning or individuality. The plants are in the way. They spoil the lawn. The place is random.'

In large grounds the shrubbery border should be composed of successive masses of several plants of one species together, followed by another harmonious group of another sort, the border of the two groups interlacing with each other. Let the transition from one variety to another be gradual—not too sudden—and the groups not too large or too exclusive. An odd plant, taller or different from the others, may occasionally stand out or above its companions very effectively; of course, tall growers at the back flanked with smaller and low-branching species in the foreground.

It is not advisable to mix evergreen and deciduous shrubs in the same group. A few shrubs seem to be admirably adapted for filling-in plants. *Tamarix* is one of these which may often be used



CARYOPTERIS MASTACANTHUS.

A magnificent shrub of very elegant and branching habit, about 15 inches high, with oval sweet-scented leaves and dark blue flowers, well adapted for cutting. It is free flowering and valuable for carpet bedding.

to relieve formality or to add variety in foliage effect, it being a tall, neat, inoffensive plant, which will harmonise with almost any other one. For low-drooping shrubs, to be used for carrying foliage from the grass lawn up to taller plants, few are more effective than *Spiræa Thunbergi*, *Stephanandra*, *Rhodotypus*, and *Berberis Thunbergi*.

—Knowledge of Plant Habits Essential—

The outlines of shrubberies should not be too straight or formal, but irregular and natural. A skilled florist or gardener should almost conceive these ideas without instructions, but definite knowledge of the habits of the different shrubs to be employed is essential to enable one to make a planting which will develop consistently as they increase in age and size. That such information can only be obtained successfully by observation and experience is evidenced by the very large number of inharmonious combinations that are seen in shrubberies all about the country. Probably rhododendrons are treated injudiciously, and are a source of disappointment and waste of money more than any other shrub, largely through misunderstanding. Rhododendrons are sociable individuals, liking the companionship and protection of other plants. Their fine, fibrous roots delight

in cool moist soil, but do not want to go very deep in earth to find these conditions, and are particularly sensitive to excessive heat or drought in midsummer. A situation where the shadows of large trees or buildings will shield mid-day sun in summer and winter, and from severe winds, is an ideal position. A perpetual mulch of leaves renewed each autumn, and with a light coat of stable manure on top of the leaves to keep them from blowing away, is most congenial to them. Mulching and shelter from wind are the most essential conditions.



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NOTICE TO FRUIT AND PLANT DEALERS.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.
2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.
3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.
4. No plants other than those growing in pots having soil attached to their roots will be admitted.
5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.
6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.
7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.
8. No plants or portions thereof will be admitted from any State or country where phylloxera exists unless accompanied by a declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in the exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phylloxera exists or has existed in the plantation from which the plants originated.
9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.
10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace.

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Extract from "The Australasian," May 18, 1907.

Phalaris commutata, a grass, which has lately given rise to a good deal of interest, and has been extensively boomed, is a variety which seems to possess many characteristics which should commend themselves to stockraisers, and in appearance is a grass which seems to justify the glowing descriptions generally given of it. If the sample grown by Mr. J. Furphy of Hill End, Moe, represents the usual growth under ordinary conditions, then undoubtedly Phalaris commutata will be a valuable acquisition to our fodder crops. The sheaf of hay shown by him, which he says represents the growth of one root, was a perfect sample of hay—juicy, of good color, and sweet to the smell. It certainly looks a hay that should be relished by all kinds of stock. Phalaris commutata is a native of Italy. It was introduced into Queensland in 1884 by Mr. Harding, the curator of the Toowoomba gardens, being one of many varieties of grasses obtained by him from America. What he says of it appears to have been borne out by all others who have tried the seed. "The seeds" he said, "were sown in drills, and all germinated and made good growth until the first frosts, which killed all except one, Phalaris commutata. Requiring the ground space for other purposes, I removed this grass, and simply dumped into a corner of the nursery taking no particular care of it. Al-

though the ground was very hard, it made tremendous growth in 1 year, germinated where it had fallen, and in twelve months grew into clumps 2ft across and 5ft in height, with nice, soft, succulent blades, and flowering stems. This has been cut two or three times in the year. The roots are fibrous, and the foliage very dense, and a bright green in colour, especially during the winter. In appearance, the leaf is similar to that of P. Canariensis, but the plant is much more productive. Visitors from all parts of the Commonwealth, who were shown this grass, were surprised how it stood the drought. To graziers and dairymen I particularly recommend it, being particularly productive throughout the year. It is easily propagated, and when once started, it will soon produce seed which, if allowed to shed, will germinate freely. The seed is small and glossy. During the '93 drought some roots were in a bag for six weeks, and the only difference it made was that the foliage was slightly yellow, though the plants kept growing all the time. It seems to like all kinds of weather, and from the rapidity of its growth it excels all other grasses I have had anything to do with. What it would be if properly cultivated it is hard to say, but it is a very desirable grass to introduce and distribute. By its own self sowing, it has covered a large amount of space in the nursery."

How to Plant it.

Mr. Furphy, whose experience of the grass corresponds with that given by the Queensland botanist, states that his trials have been made on poor, light soil, and he estimates that if properly attended to and given a light dressing of superphosphate, it would yield 8 tons of dried hay to the acre per annum. These are very big figures, and the grower who got half that return should be well satisfied that he has found a valuable new fodder plant. "I obtained," he said, "a few plants, and transplanted at the end of April, and whilst putting them out in drills 3ft apart and 2ft in the drills by the end of June they had made a growth of 2ft, sending on the shoots, until by the end of the season, as many as 167 seed-stems had been produced by one plant, the height being about an average of 7ft. It was a severe winter, but not a yellow leaf could be seen." He suggests that the seed should be sown in a bed like cabbage-seeds, and when the plants are sufficiently strong, should be transplanted 3ft apart each way. Having only seen the grass in a sheaf, it is difficult to form an opinion of what it would be like for fodder purposes, but there can be no question that for hay it is admirably suited, and if it fulfils half the good things claimed for it by the grower, Australian farmers should be well pleased.

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MARGARET CARNATION.

Description of Flowers.

May be Sown during this Month.

Carnations.

The writer of the "Country Housewife's Garden," published over 300 years ago, writes thus of the Carnation:—"July flowers, commonly called Gilly flowers, because they flower in July, I may call them the king of flowers (except the rose). The best sorts of them are called Queen July Flowers—some of them are as big as roses. Their use is much in ornament and comforting the spirits by the sense of smelling."

The estimate of this old writer is generally accepted at the present day. The rose is still the Queen of flowers, but next to it we must place the Carnation. We do not seem to have gained much with regard to size of the flower, but to have gone back as regards fragrance.

The Carnation has one advantage over the rose, in that it will flourish in positions where the rose would make a complete failure. In smoky districts that would be death to the Rose the Carnation would be in its element. Carnations are usually divided into four classes, as follows, Sels, Bizarros, Flakes, and

Picotees. Sels are of one color only, without marks or shadings; Bizarros are those in which the white ground color is striped with two colors, one being darker than the other; Flakes are those in which the ground color of the petals is striped with only one color, purple, scarlet or rose. In the Picotee, the color is distributed in curves round the edge, forming by a combination of the petals a circle more or less perfect. If the color be dense, it is styled heavy, and if a light edge medium, and if a very fine edge of color it is termed wire-edged. Its ground color should be white or yellow, pure and without blemish. In some instances the more delicate-edged Picotees appear to be of less robust character than Carnations generally, and it is probable that a considerable amount of breeding in and in to secure the fine beaded edge may have induced constitutional weakness. It may be fittingly described as the feminine of the more muscular Carnation. The Picotees are divided into three sections, red edged, purple edged, and rose edged. Although the Picotees are often classed separate from Carnations they both

require the same treatment, and both may be raised from one pod of seed.

— Cultivation. —

The Carnation is one of the easiest cultivated of plants, and will lend itself to the various forms of garden ornamentation. It can be grown in the mixed borders, on single lines, or, better still, in beds by themselves. The first consideration is the preparation of the beds, which for several reasons should be undertaken some time beforehand in order that the ground may have time to settle before the plants are put in, as a firm root run is one of the first principles of successful Carnation culture. Time and a good soaking rain will bring this about more effectually than treading. Stiff or clay soils do not require compressing as lighter formations, but in loose soil plants will not thrive to any extent or for any length of time. Planting may commence early in autumn, through the winter and early spring, but the best time is early autumn, and on no account should the plant be pot bound. A piece of ground in an open and sunny position, yet sheltered from strong winds, should be chosen if possible. The ground should be deeply dug—a good double digging—that is two spits deep, if the ground is old garden soil, and a thick coat of well-rotted cow manure, well mixed with the soil. Do not fall into the error of making the ground too rich with manure. This would have a worse result than the other extreme of poverty. Extra nourishment can always be supplied later with the best results by means of artificial manure, or mulching and liquid manure in dry times.

Heavy soils will be greatly benefitted by the addition of sand or grit, sea sand is excellent, as it contains a small percentage of salt. Burnt oil is also good. Carnations make quick and strong growth in charred earth. If the soil be a very light one it will be specially benefitted by a dressing of burned garden refuse. Carnations are also very fond of lime or old mortar, but it must not be overdone. Bonedust and superphosphate are the best fertilizers, dusted over the ground at the rate of three pounds per square rod.

Soot is cheap and an excellent fertilizer.

The beds should be 4 feet wide, raised fully 6 inches higher than the path; these beds will hold three rows of plants 15 inches apart. One of the secrets of successful culture is firm planting, spreading the roots out neatly (that is if the plants are not in pots). Press the soil firmly down well around the plants. The roots should be well covered with soil, but at the same time do not bury the plants in a hole, rather let their foliage stand clear of the surrounding soil. If in damp ground let each plant stand on a slight mound and receive a good watering to settle the soil around it. If from pots plant the same depth as the pot they were in. If in heavy soil some light material may with advantage be placed around before the heavy soil is filled in.

The after cultivation consists principally in keeping the ground free from weeds, giving water in dry times (though none will be required during winter), supporting the flower stems as they rise, thinning the buds more or less, and destroying earwigs and other pests.

Top dressing is a valuable aid to the cultivator, especially where the soil is shallow, sandy, or impoverished, or when the plants make poor growth. The best time to apply it is when the shoots start to rise in spring and before the buds show. A good top dressing consists of leaf mould, old hot bed manure, some sifted mortar rubbish, with a good sprinkling of soot and bonedust, mixed well together and spread over the bed to a depth of two inches, working it around and between the plants. Water this well in and the result will soon be apparent, for the roots will begin to work and soon improve the appearance of the plants. As the flower stems rise in the spring they should be supported, as in the early stages of growth they are very brittle and easily broken by the wind. Laths used by plasterers are cheap and suitable. One-year-old plants are best supported by each shoot being tied out to a lath; older plants would need four laths placed in a square with reaper twine wound in the shape of hoops. This I find gives the plant a good support and a graceful appearance. Nothing looks worse than



CAMPANULA PRIMULÆFOLIA.

slovenly tied-up Carnation plants. As the buds show form, if good flowers are required, they must be thinned. For ordinary purposes little or no thinning is required, but for show purposes not more than two buds should be left on a strong shoot, or one on a weak one. After the plant has done blooming the flower stems should be cut right down to their base.

Campanula (Bellflower).

The Canterbury Bell deserves to be raised from the somewhat common level to which many gardeners assign it. By a good many it is thought that this flower lacks character, and is straggley in growth. This may be so, but the white persicifolia is a delicate looking bloom, and the striped red Punctata is a good variety. The cup and saucer Calycanthema is a large flowering variety well worth cultivating, while the other extreme miniature Garganica makes an effective basket plant of graceful trailing habit. The Primulæfolia variety (illustrated above) is a noble, rich-flowering and extremely handsome Campanula, with slender, close-flowered

panicles of upright cornflower-blue flowers.

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The Vegetable Garden.

Operations for the Month.

Wherever there are vacant spaces in the garden there should be a clearance made, and the ground that is not wanted for immediate use should be manured and dug-up roughly. Stable-manure is frequently improperly treated; it is often spread out on the surface for a long time before it is dug in, and should the weather be dry, much of the virtue of the manure is lost; besides, by this process, any seeds it may contain are not destroyed, as they would be handled as it should be. Many persons condemn the use of natural manures, because they very often contain seeds which germinate and become a great nuisance, and they pin their faith to some condensed artificials, which, doubtless, are excellent fertilisers; but they give no consistency to the soil in the manner that farmyard-manure does. The proper system is to give preference to dung; but to use bone-dust, superphosphates, and other manures as well.

It is almost impossible to keep weed-seeds out of the food that horses eat, or out of the bedding that they are provided with; it is, therefore, necessary to destroy these seeds by heat and fermentation, and this can easily be done by stacking the manure into heaps large enough to produce fermentation sufficient to kill seeds of any weed or plant that may be present. The fermenting of dung is best done in the open air, as more steam is generated than when under cover. The fermentation also causes the straw or other material to decay rapidly. Where cattle manure is available, it should be mixed with that from the horse, as both combined make a splendid fertiliser. Heaps of dung should be turned over once or twice, so that all of it may receive the benefit of fermentation.

ARTICHOKES.

If you did not do so last month it is not too late yet to sow a row (one will probably be sufficient) in light, rich deep soil, and

plant out in rows about 6 feet apart. The artichoke will succeed fairly well on moist soils, if not too dry provided the ground be well manured. The heads ought to be cut as soon as ready, and not left to ripen on the plant, as that will exhaust it, and no more heads will be produced the same season. Heads are unfit for culinary purposes after the flowers expand.

CHINESE ARTICHOKE.

Try a little of this vegetable, which was introduced to Australia by Messrs. E. & W. Hackett in 1890. The tubers range from one to two inches in length and are about half an inch in diameter. They are pearly white, and eaten raw they are intermediate in flavor between a succulent Radish and Jerusalem Artichoke. When cooked, by boiling, steaming, or roasting, and served with melted butter, they are delicious in flavour, and make an acceptable dish. The soil should be well pulverised to enable the roots to run freely and the tubers to swell. Plant in rows 18 inches to 2 feet apart and 9 to 12 inches apart in the rows. As the tubers become rather discoloured when they are exposed for any length of time, they should be covered with soil until required for use.

JERUSALEM ARTICHOKE

This is not a true Artichoke; it is so called from the resemblance in flavor of the tubers to the Artichoke. The stems grow tall and upright, and bear a flower like the Sunflower. The tubers are baked, boiled, or roasted. It is propagated by tubers, which may be planted in rows 3 feet apart and 1 foot in the rows. The ground should be deeply dug or trenched, and manured previous to planting; earth up the same as potatoes.

ASPARAGUS.

Advice was given last month to have some ground made ready for this good vegetable. If this work has been delayed set about it as soon as possible. Sow in nursery beds, and when the plants are large enough (say in the following winter)

transplant into richly prepared beds, as advised in our April issue. Plant in rows 15 inches apart, good, strong, one or two-year-old plants; we prefer these to three-year-old. Keep weeded, and in the winter time mulch heavily with well-rotted stable manure, and a scattering of kainit or salt. Care should be used not to weaken the young bed by cutting till the plants are vigorous and well established, which should be in two years after planting. Only cut the strong and vigorous shoots, and these sparingly to begin with. An Asparagus bed properly made and regularly attended to should last for very many years.

BROAD BEANS.

Sow largely this month in rows from 2 to three feet apart, according to the variety, for the dwarf-growing kinds may be sown closer together than the tall. The seed should be sown about four or five inches apart in the rows, and two inches deep.

BEET RED, (Long and Turnip).

A further sowing may be made if desired. Full particulars regarding the cultivation of Red Beet was given in our March issue.

BRUSSELS SPROUTS.

Transplant to well dug up but not too heavily manured ground that has been prepared for them. The growth must not be forced, or else the young sprouts will not form well. Plant in rows about two feet six inches apart. The plants to stand about two feet from each other in the rows.

CABBAGE.

Sow more seed, and plant out the young cabbages that may be available. They should not be pulled out of the seed-bed, but taken up carefully, without breaking more roots than can be avoided. To produce really fine Cabbages the soil must be fresh and rich, either naturally, or by means of manure. The highest and best drained portions of the ground should be selected. The after culture consists in keeping the ground free from weeds, and loosening the soil by means of fork or hoe.

CARROT.

More seed may be sown if needed. The

most suitable soil for the Carrot is a deep loam, which has been trenched to a depth of two feet, and well manured. As the seed sometimes takes a considerable time to germinate, the beds are apt to be covered with weeds before the lines of seed are well defined. If care was taken to keep the beds free from weeds there would not be so many complaints about the seed not germinating. Sow the seed in rows two feet apart; make several successive thinnings, until the young plants stand from 4 to 7 inches apart, according to the variety. Before sowing the soil should be deeply pulverised, and no manure should be used but which is thoroughly decomposed.

CAULIFLOWER.

Transplant the seedlings large enough in good rich soil which has been trenched and well manured, in rows of from 2 to 2½ feet each way. The cultivation of the Cauliflower is similar to that of the Cabbage; soil that will successfully grow one will grow the other. The frequent stirring or hoeing the ground between the rows has a tendency to maintain a healthy growth. During a dry spell the ground must not be allowed to get hard; plenty of water is necessary.

CHEERVIL, TURNIP ROOTED.

The roots are in form and size like the Early Horn Carrot, color like a Parsnip, with white farinaceous flesh. The flavor is between a Chestnut and a Potato. The roots are eaten boiled; the flesh is floury and sweet with a peculiar aromatic flavor. Follow the same method of cultivation as given above for carrots.

CRESS and MUSTARD.

Sow for succession about once a fortnight in light rich soil in drills half an inch deep and 8 inches apart, and sow thickly.

ENDIVE.

If plants are available, they may be planted out largely. Sow a little more in a bed or box, and when three or four inches high, plant out in good rich soil, which has been trenched and well manured, in rows a foot apart each way.

LEEK.

Seed may be sown largely, and any

plants from previous sowings that are large enough, say six inches high, may be planted out. Directions were given in our last issue.

HERBS.

Sow in pots, boxes, or seed-beds, and afterwards transplant.

LETTUCE.

Follow those directions given for Endive.

ONION.

Sow in shallow drills about a foot apart and do not cover deeply. When large enough transplant in rows a foot apart and about six inches apart in the rows, and apply liquid manure occasionally.

PARSLEY.

Cover the seed lightly in rows a foot apart; thin out to nine inches apart in the rows.

PARSNIP.

Sow in drills 18 inches apart, and when the plants are about 2 inches high, thin out to 6 inches apart.

PEAS.

Keep on sowing a row or two from time to time, in order to keep up a continual supply if possible, for it is hard to find a better vegetable than the pea.

Sow in rows 2 feet apart for the dwarf varieties, and from 4 to 5 feet for the tall varieties.

POTATO ONION.

Plant the bulbs very shallow in deep, rich, well-prepared soil, in rows 15 inches apart and 10 inches from each other in the rows.

RADISH.

Sow either in drills or broadcast, and when the plants are fit thin out to about two inches apart.

RHUBARB.

Sow in rich deep soil, in drills a foot apart and an inch deep; thin out to 6 inches, and in the following season transplant the seedlings in rows 3 feet apart and 2 feet in the rows. The crown should be 2 inches below the surface.

SEA KALE.

Sow the seed in rich soil, in drills a foot apart, and thin out to 8 inches in the rows. Stir the ground and keep free from weeds. In the following season

(June or July) take up the plants and transplant in rows 3 feet apart and 18 inches in the rows, covering the crowns 2 inches. The best soil is a rich deep sandy loam, trenched 2½ feet deep, and well incorporated with rotten manure. An occasional watering with nitrate of soda is beneficial (1 oz. to a gallon of water). The leaves should be removed as they decay, and a covering of 6 or 8 inches of light soil placed over the plants; by this means they are blanched. The blanched shoots should be cut while they are crisp, stiff, and compact.

SHALLOTS.

Make a further sowing if required. See our April issue for directions as to cultivation.

TREE ONION.

The bulbs should be planted in deep rich soil, in rows 12 inches apart and 6 inches from each other in the rows. They must not be covered much.

TURNIP.

Sow more seed for succession.

Set the seed in light, rich soil, in shallow drills 15 inches apart; sow the seed thinly, and when they come up thin out to 8 to 10 inches in the rows.

About Potatoes.

Lawson, in 'Scottish Agricultural Products,' says:—'To Thomas Prentice, a common day laborer, who lived near Kilsyth, is the honor due of bringing the Potato into general culture in Scotland in 1728.' He adds there was long a prejudice against it, because it was not one of the food roots mentioned in the Bible. The first book on the potato is that by John Forster, in 1664, entitled 'England's Happiness Increased, &c., by a Plantation of Roots Called Potatoes.' In 1683 John Reid, who wrote the 'Scot's Gardener,' states:—'Potatoes, being cut in as many pieces as you like, provided there be an eye to each piece, are planted in March, five rows in the bed; plant not deep, neither in wet or stiff ground; spend them with parsneps, and in housing spread only through a board floor.'

Novelties in Vegetables.

A few valuable novelties in vegetables are referred to in the 'Gardener's Chronicle.' The French gardeners are cultivating for very early work a carrot named Paris Egg; it is a very rapid grower. This may be followed by Early Nantes, a carrot that has become a great favorite with English gardeners, the roots being of nice form and a bright red color. Another excellent variety is Lobberich, a stump-rooted variety, and late coming into use; very sweet and good, and deserving to be well known.

In Celeraic, the variety Delicacy, introduced into commerce several years ago, has maintained its good reputation. The plant has fine foliage, the root is oval globular and smooth, and it possesses but few fibres. It is peculiarly white in the flesh, and tender in eating. The short-leaved apple-shaped Celeraic is a highly-esteemed variety.

Among rhubarbs, a vegetable which in culinary uses is treated as a fruit, the novelties Cyclops and Monarch are valuable as being heavy croppers. The stalks of these varieties sometimes weigh 4lb. each. They are tender when properly cooked, and pleasant to eat. The plants are not to be despised as decorative objects in the pleasure-grounds or the mixed flower border.

The Australian brown-skinned kangaroo differs from most onions raised in warm countries as being a long-keeping bulb. The skin is amber-colored, shape almost globular, of middle size, firm of flesh, and weighty for its size. It is an excellent market onion, and should have a good future before it.

Among the earliest short-topped and bright-coloured varieties of radishes are First Crop and Non Plus Ultra, adding to these Drie Brunnen, a famous Erfurt variety. Wurzburg Giant is unexcelled as a variety for cultivating in cold frames. The seed should be sown thinly, or the plants liberally thinned, in order to get fine-sized roots with tender flesh. The Salvator white radish has been some years in commerce. It is a summer variety, and is becoming a

favorite with the public. The netted Sedan radish has long, pear-shaped roots, smooth as to skin, and netted black on white; the flesh of this, as well as that of Salvator remains tender for a long period of time, and free from woolliness.

Of runner beans, the variety Ohne Gleichen (Peerless) was introduced in 1907; and, judged by the crops of that year, it is a thoroughly valuable variety, which will take a higher rank than the July runner, from which it was raised. The pods are about seven inches long, and very freely produced; as good a bean for the private garden as for the market.

Among dwarf kidney beans, Thuringia is a fine late-cropping variety, with long and broad pods. The white-flowering, white-podded conserving variety of broad bean, that originated in Holland, is certainly worth cultivating. The plant has great vigor, it crops heavily, and the pods are well filled and of great length. The seeds may be conserved in the green as well as ripe state. The color, yellowish-white, is appreciated in a preserved vegetable.

The Wonderberry.

In the 'Revue de l'Horticulture Belge' of March 1 a hybrid fruit, named the Wonderberry is described. This most curious fruit was raised by Mr. Burbank, and it bears the alternative names of 'Sunberry' and 'Sugarberry.' It is described as the result of a cross between two species of wild Solanum (*S. guineense* and *S. villosum*). While neither of these species produces edible fruit, this bi-specific hybrid produces a profusion of delicious berries, which are both sound and wholesome. There is also the additional advantage that the plant comes true from seed like a natural species. The plant is not more than 18 in. high, by a little more in diameter. The flowers show themselves about the end of May, and succeed one another without interruption, till very late in the autumn. The fruit, or berry, is of a blackish-blue colour, of the size of a large black currant, and is produced in clusters of

six, in such abundance as to entirely cover the plant. The fruit is eaten either raw or cooked, or made into jam. The culture is easy, and requires less care than either that of haricot beans or tomatoes. Any soil suits it, provided that it be not too highly manured, the result of which is only to produce a more luxuriant vegetation without increasing the amount of fruit. Seed may be sown in the open ground in May, and under glass in April. The plants should stand about three-quarters of a yard apart.

History of the Turnip.

This vegetable was cultivated by the ancient Greeks, and after them by the Romans, among whom it was used as a food for slaves and cattle; and it was also presented at the tables of the wealthy, dyed in at least one of six different colors. These people were thoroughly conversant with the requirements of the plant, for which they cultivated the soil with a carefulness unattempted in modern times, and made use of the seeds, the foliage, and the bulbs with discrimination. A curious superstition is mentioned by Pliny as having been practised by those who sowed the seeds. They performed the operation while in a nude condition, meanwhile praying that the turnips might grow for themselves and their neighbors; it was a Roman custom that anyone could help himself to turnips from his neighbor's field, just as in the north of England and in Scotland it was till quite recently permitted to anyone to enter a field of turnips and eat one, but it was illegal to carry the root away. The Welsh people at one time ate largely of raw turnips. The foliage was boiled in pottage. The stalks in spring were stretched, and after being cut into suitable lengths and peeled, were cooked as a substitute for asparagus. A not uncommon way of preparing the roots was to wrap them in a piece of paper, to be placed under the glowing embers till roasted, afterwards eating them with sugar and butter. The seed leaves of the turnip are sometimes used in the same way as mustard as a salad.



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Lettuce Juice.

The soporific properties of the garden lettuce were known in the earliest ages. Galen used to eat lettuce in the evening as a remedy for wakefulness at night, and most people find that it induces sleep. Lactucarium is the inspissated juice of the garden lettuce, and has the color and, in some measure, the taste and odour of opium, but no morphia has yet been obtained from it, and its narcotic principle is therefore undiscovered. Its analysis is said to prove it to contain a large proportion of caoutchouc, as much as 22 parts in 50. Its medicinal effects are very nearly the same as those of opium, but it is undoubtedly much milder in its operation, and may consequently be used in cough and consumption, and in other cases where opium from its stimulating effects cannot be borne. — 'Faulding's Medical and Home Journal.'

Lettuce Running to Seed.

During the late hot weather it has been difficult to grow good cabbage-

hearted lettuce, owing to its tendency in the height of summer to run to seed. A contemporary says that although this mishap cannot be wholly prevented, everyone may, by following the practice here given, bring about an essential improvement in his stock. The chief condition is to cultivate only such varieties as are found to succeed in the district. When the plant begins to form hearts, the finest of these should be marked throughout the bed, and as soon as these marked plants begin to shoot they should be pulled up for use, and this practice is to be persisted in till only so many plants remain in the bed as will suffice for affording a crop of seed. By this process of selection, carried on for some years, plants may be raised which will fully resist the effects of hot weather.

Received.

RUMSEY'S SEED CATALOGUE. — The latest catalogue of this huge mail order firm is to hand, and contains many novelties for the present year. We will enumerate a few:—The Early Pride Tomato, which is claimed to be a beautiful pink in color (instead of red) and of

superior favor, a new scarlet Tomato named Livingston's Hummer, Fordhook Bush Lima Bean, Epicure Climbing Bean, Danish Prize Brussels Sprouts, Lucullus Spinach Beet, Dry Weather Cauliflower, Brittle Ice Lettuce and Rumsey's Giant Round Pod Bean. Amongst the novelties in flowers is mentioned a new race of gigantic "Orchid flowered" Sweet Peas, seedlings of Countess Spencer. The largest in size of all Sweet Peas, this distinct type is claimed to be a wonderfully beautiful new departure and embraces the most exquisite shades of pink, orange, salmon and rose. Of the 'King Edward' Spencer variety it is said: 'The enormous flowers come almost uniformly waved, and crinkled to a pronounced degree, the standard measures from 1½ inch to 2 inches across by 1½ inches deep, the wings are 1½ inches wide by 1½ inches high. The standard is a deep red carmine scarlet of glossy effect. The wings are also carmine and scarlet, and on the reverse side a deep rosy carmine. Stems 12 to 15 inches long, with four blooms.'

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BEE = CULTURE.

Advice to Beginners.

By Isaac Hopkins, Apiarian, in Bulletin
18 of N.Z. Department of Agriculture.

(Continued from last Issue.)

IV. THE APIARY.

—Choice of a Locality for Bee-farming.—

This is one of the most important matters to come under the consideration of the prospective bee-farmer, and requires careful judgment. A too-hasty decision may cause great disappointment and loss, for, once having established an apiary, it is troublesome and expensive to move it. Having decided that white clover honey is the most profitable to raise, it is imperative that the apiary should be established in a clover district. There can be no doubt that dairying districts afford the best clover pasturage, so far as bee-farming is concerned. The pasturage in sheep country is, as a rule, kept pretty closely cropped and the clover has very little chance to blossom when heavily stocked. Country where much successive cropping is carried on is useless for bee-farming, so that one cannot do better than fix upon some dairying district.

—Site and Shelter.—

Slightly undulating country is much better than a flat open site for a bee-farm. The natural shelter obtained in the former is a great advantage, as it affords the bees protection in some direction or other, in almost all weathers when on their foraging expeditions. In any case, the apiary should be well sheltered, and in the absence of shelter of some kind it should be erected at the start. A depression in the ground will assist, and a temporary fence 6 ft. high on the windy side will do, while shelter-trees or a live fence are growing. High trees near an apiary are a nuisance, as swarms are likely to settle on them far up out of reach.

For a rapid-growing shelter-hedge giant privet and tagasaste (commonly called 'tree-lucerne') are to be recommended where cattle cannot get within reach of them. Tagasaste affords splendid bee-forage, as well as shelter, and it grows very rapidly.

The following cultural directions and general particulars respecting these two plants for shelter-hedges for apiaries are supplied by Mr. J. E. Barrett, nurseryman at the Government Experimental Station Waerenga, who fully indorses their recommendation as most suitable subjects for the purpose:—

—Tagasaste (*Cytisus proliferus*).—

This plant is often erroneously called 'tree lucerne,' the botanical name of which is *Medicago arborea*. They both belong to the same natural order, (*Leguminosæ*), but to different tribes, that of *Genistææ* claiming the tagasaste, and *Trifoliææ* the medicago or true tree lucerne. Of the quick-growing and sheltering qualities of the tagasaste we have had several years' experience at Waerenga. In the month of February 1903, a row 3 chains in length was sown in the nursery on stiff clay land, and in two years from sowing a dense and picturesque screen nearly 10 ft. in height was formed. At Waerenga this plant continues growing the whole year through and, excepting a break of about two months in the autumn, is equally free in the production of its white pea-like blossoms, upon which the bees may be seen constantly at work. The latter fact renders this plant of special value to bee-keepers during the months when other flowers are scarce.

To obtain the best results the seed should be sown in early spring, and to assist germination it should be first steeped in very hot water (not boiling) to which a little washing soda is added—pouring on the water and letting it stand till quite cold will suffice to soften the seed, and, after straining, the addition of a little dry sand will separate it nicely for sowing. It is important that seeds treated in this manner should be sown immediately.

The ground should be thoroughly

worked (as for onions), and if, as is to be recommended, a double row is contemplated, the width of the prepared bed should be not less than 4 ft. Sow the seed three in a place at a distance of 3 ft apart and 1 ft. from edge of bed on either side alternating the second row with the first—this gives a distance of 2 ft between the rows. Thin out the plants as they advance, to the strongest in each place and during the year keep the clippers constantly at work to promote a dense base—cutting must not be neglected if a good close hedge is required; it also tends to prolong the life of the plant by curtailing its free-flowering and seed-bearing propensities.

—Giant-growing Privet (*Ligustrum sinense*) —

For permanency and general utility this plant can be thoroughly recommended as a shelter-hedge. It is of close upright growth, extremely hardy, and adapts itself well to a wide variety of soils and situations. It is not advisable, however, to employ any of the *Ligustrum* as hedge-plants too near a garden plot, as their surface roots extend several yards from the base on either side, and extract all virtue from the soil. This fault can be obviated to a great extent by cutting ditches at a little distance from the plants on either side. Assuming that this space is of no consequence, then the privet may be advantageously employed for shelter purposes. For a single row a width of 3 ft. should be deeply dug, and if the ground be poor a liberal dressing of bonedust given. Select strong two or three-year-old plants, and set out at 18 in. apart along the centre of the prepared ground. To induce a good base it is well to clip the plants fairly hard back at the time of planting; in following seasons the sides may be lightly clipped, and the tops of those unduly high reduced to a general level. With fair treatment four seasons of growth should produce a hedge from 6 ft. to 8 ft. high. As there are many different species of *Ligustrum* in cultivation, care should be taken to get the best for hedges—that is, the one under notice.

Where the surrounding country is hilly the apiary should be situated in the lowest part, if possible, so long as its not swampy or wet, in order that the bees when coming home loaded will have to fly down instead of upwards.

(To be continued.)

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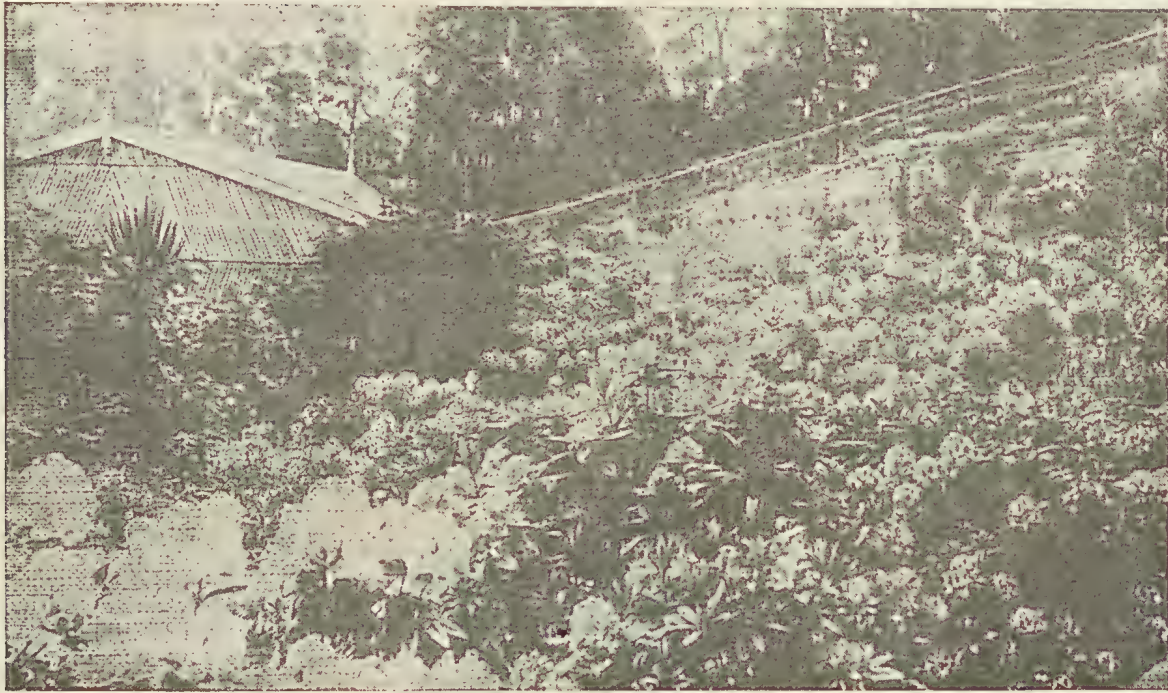


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Rhododendrons in Bloom at St. Vigeans, Mount Lofty.

ST. VIGEANS.

The residence of Dr. Stirling, F.R.S., is so named in pious memory of his father, whose schoolboy days were spent in the ancient parish of St. Vigeans, which closely adjoins the town of Arbroath, in Scotland. St. Vigean's Church, indeed, is one of the most ancient in Scotland, parts of it dating from the thirteenth century, and its history is closely interwoven with that of the Abbey of Aberbrothock, which lies within Arbroath itself.

The grounds of the garden are between four and five acres in extent, laid out on the slope of a somewhat steep hill, and the approach is from a district road which runs alongside the property. The road first claims attention because of the fine avenue of Oriental planes, which, the doctor naively remarked, the District Council allowed him to plant. This condescension on the part of the Councillors showed an attribute of wisdom in having an exceedingly pretty country lane added to the original beauty of Mount Lofty, in the district of Stirling West, so named after the father of the owner of Saint Vigeans. The house was

one of the first of the many country residences which now beautify the surroundings of Mount Lofty. It overlooks a valley through which the railway runs, the station being within a few minutes' walk of the house. Nearly on the crest of the hill excavations had to be made, and a large area of level ground filled up to take the drive, the house, and the terrace around it.

The picture presented above is from a photograph taken while the bed of Rhododendrons (from rhodon, 'a rose,' and dendron, 'a tree'), was in full bloom, and gives an idea of what a mass of beauty is exhibited there. To realise it better all the white blooms in the picture must be turned into a variety of deep rich colorings, and lovely tints, from white through the various shades of red, from the palest rose to dark plum color, set in a beautiful green foliage, intermingling just enough to enhance the beauty of the scene.

Dr. Stirling has for years taken great trouble, and spared no expense to get his show of Rhododendrons as complete and good as possible. Visitors from far and near travel yearly to St. Vigeans to see this collection, and the doctor in his

visits to England has made fast friends in Rhododendrons with the Waterer family, who are probably the most noted growers of these floral beauties in the world.

The second view represents the pond—a nice sheet of water about two chains long by half a chain wide. This part of the garden has some claim to picturesqueness, and our artist has succeeded in catching a nice view of it. Here the Nymphæas spread their broad leaves lazily floating on the still water, and the wax-like blooms hold their pretty heads up to the sunlight. The evaporation from a sheet of water like this is considerable, and to regulate the immersion of the plants they are placed in pots suspended on wires, which can be lowered to the required depth, and otherwise receive attention. While the water lilies lie undisturbed upon the surface the grasses grow high above them and waive their nodding heads to the breeze that rustles the foliage of the stately bamboos and the stiffly growing New Zealand flax. Here, too, the Irises (Kaempferi and Aurea), with a luxuriant growth, dip their leaves in the refreshing pool, while the Cannas luxuriate in their



St. Vigeans.—Water Scene.

splendid foliage and rich reds and yellows. Vieing with these are the great green leaves of the Aurums and their snow-white spathes. Holding its own amongst the others for luxuriance of foliage and beauty of flower is the Agapanthus, whose dainty sprays of pure white or of blue flowers stand up on their long stems to catch admiration. These beauties are singularly attractive, and their value also lies in the power of vitality they possess to defy the withering elements of weather and sun. As cut flowers for buttonholes or decorative purposes they have few equals. Then there are the great Daisy bushes, with their profusion of clear white, looking charmingly cheerful amidst the wealth of green. In all this variety of foliage there surely would be something missing if the Pampas (Gynerium) Grass were not in evidence. But there it is, like a final touch of beauty, with the fine waving plumes of elegance, than which few things could look superior in such surroundings.

Dahlia Seed.

Mr. Ernest Ballet has published, in the *Journal de la Ferme*, an interesting article on Dahlia seed, from which we quote the following: A very important point in gathering the seeds is the selection of the plants; they must be free bloomers and the flowers must be well formed and as nearly perfect as possible, but the color need not be considered since it is not reproduced. Only a reasonable number of heads in seed must be left on each stalk. The first flowers are preferable, provided that they are fully developed. In order that the flower may receive the proper nourishment a part of the later buds on the stalk are clipped off and the remaining flowers are cut as soon as they begin to fade, every imperfect flower being at once cast aside. The flowers so selected are then freed from surrounding leaves, which would impede their full development. As they are ending the period of their bloom, the florets on the circum-

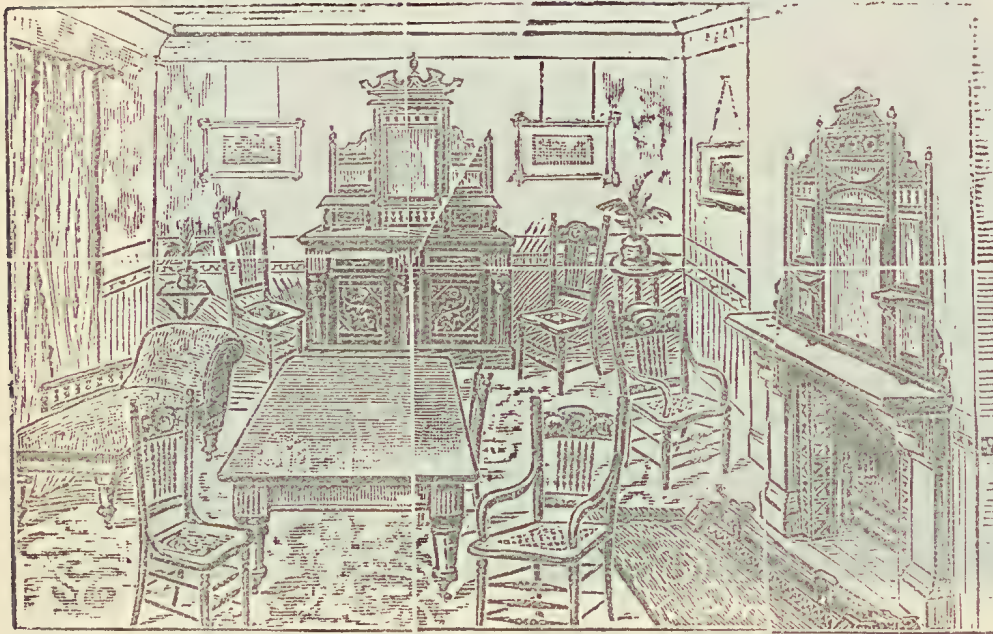
ference must be removed from time to time, for as these form round the stem, they cause it to rot, making the seed drop before its maturity. It is difficult to tell the exact moment of the maturity of the seeds, but the flowers should be picked as soon as they change in color, otherwise the seeds might be lost, either by falling out when dry or by rotting in the rain. The flowers are then placed side by side in a single layer in an airy, dry and warm place. When they are well dried they are rubbed between the hands, causing the seeds to fall out. These seeds are hard and black and, to an inexperienced eye, often lack the kernel. We do not know whether the longest and least flat seeds give the fullest flowers, as is the case with zinnias and certain other species. This is a matter for experiment. The clean seeds are put into sacks until the time for sowing. It need hardly be added that dahlia seeds are of value only for sewing with a view to obtaining new varieties.

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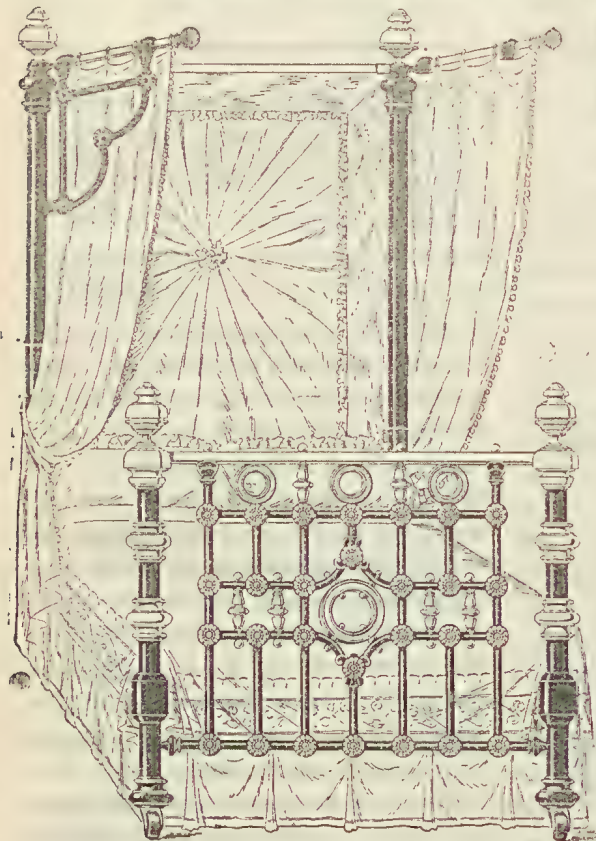
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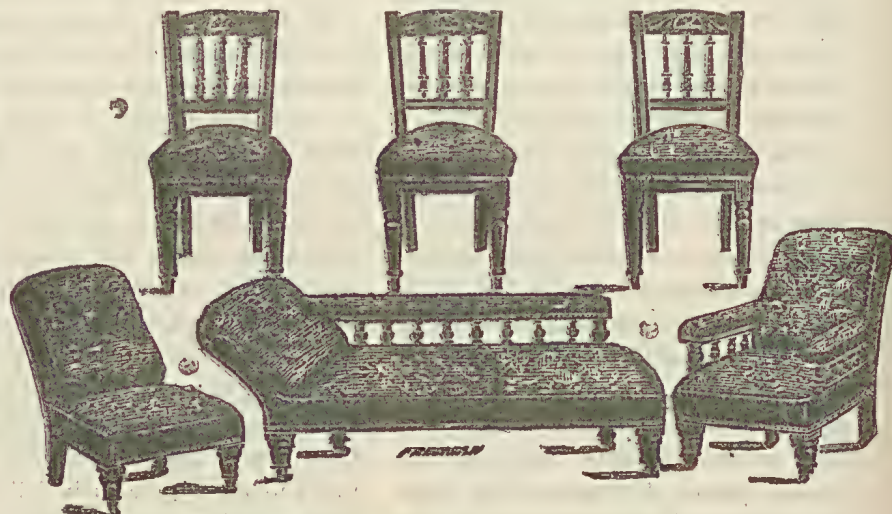
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The Orchard.

Hints on Planting Fruit Trees

Given favorable weather conditions, a sufficiency, not a super-abundance, of rain to render the soil in fit condition, the operation of planting should be in full swing during this month. Only in wet, cold districts is it advisable to delay planting until spring. The soil being both warm and moist, the roots will take kindly to their new quarters, and will go on forming before the depth of winter overtakes them.

Assuming that the soil has been thoroughly cultivated, and that the grower has made a study of his area, that he is familiar with all the varying nature of his soil, and the variety of sites and aspects his orchard offers. Assuming, too, that he has some acquaintance with the individual tastes and predilections of the subjects he is about to plant to guide him in the matter of their disposal, we can pass on to a few suggestions connected with the all important matter of planting fruit trees. Choose in the first instance healthy, straight-stemmed young trees neither overgrown nor stunted, with a good root system, and every indication of healthy development. The roots must on no account be allowed to become dry, the trees should, therefore, not be lifted too soon. They must not be exposed to the air whilst awaiting their turn to be planted but should be protected by straw or hessian. Damaged and broken roots should be cut back with a sharp clean cut to a healthy part, which will induce new growth to spring. Every plant should

have a perfect wreath of roots. As we desire the headgrowth to be perfectly symmetrical, so we must ensure an equal distribution of the roots. Avoid crowding them all in one direction. The few main roots should spring at regular distances from the base of the trunk, and the fibrous growth should be evenly disposed between. Carefully disentangle the roots if at all matted, and spread out in layers to their full extent. If the tree has come from the nursery with a faulty root system, give the side deficient in roots the most favorable aspect, and do everything to encourage an equal growth.

The hole in which they are placed must be wider than the length of the roots to allow of their being spread out to their full extent. The bottom of the hole should be convex so that when the tree is placed on the slight elevation in the centre, the roots will have a gentle inclination downwards. Each layer of roots should be covered with a layer of light soil. Care should be taken not to throw it in heavily and so to jam the roots, but with just a light sprinkle to sift through and fill in the interstices. This soil should be brought for the purpose, and should be a light loam combined with vegetable mould and wood ashes. When covered make the soil firm, but do not tread if inclined to be at all heavy and stiff.

The soil mark on the stem is generally a good guide as to the depth at which the young tree should be planted. The top layer of roots should not be covered with more than an inch or two of soil. Young trees want careful staking, as they are liable to injury if blown about by rough winds. The stake should be driven in before planting, and the base dipped in creosote or tar.

Prune the head of the tree as well as the roots before planting, and give the weaker side the more favorable aspect. Three or four well disposed shoots are sufficient to form the foundation of a symmetrical and profitable head.

In planting a new orchard the square style is the most economical and satisfactory to adopt. The distance apart at which trees should be planted naturally varies according to the nature of the soil

and the native habit of the tree. We have to consider the breadth and height to which a tree will attain under given conditions, the necessity of a free admission of light and air of facilitating cultural operations. If a tree spreads twelve feet—that is, six feet each way from the trunk, eighteen feet should be the minimum distance at which to plant. In the case of pears, plums, apricots, and apples, being somewhat vigorous of growth, from eighteen to twenty-four feet should be the distance. With cherries, quinces, and peaches, from sixteen to twenty feet is a good average distance. A free space of six feet at least should be allowed between the extremities of the trees.

The importance of providing a perfect drainage system at this season should be fully realised. The benefits are so obvious. The accumulation of water in the soil excludes air and prevents its mineral ingredients being assimilated by the plants. Moreover, the heat from the sun, instead of warming the soil and promoting growth, has to expend all its precious powers on evaporation. Where drainage is provided the rain is enabled to pass freely through the soil, and with it air and several beneficial gases. The system of drainage depends upon the nature of the soil and the class of crops. In a cold, wet district and a heavy soil deep drains are best, as the soil is then partially dried and warmed to a greater depth. From three to four feet is a fair average depth. They may be placed forty feet apart, or from four to eight drains to the acre. Earthenware cylinder pipes are the most durable; these should be packed, so to speak, in brush wood or stone rubble to prevent them being choked by silt. If the land has been well graded draining is considerably facilitated. One must, before deciding on a system, consider the contour of the land, take the highest and lowest levels, choose the lowest point for the outlet, and ascertain the best gradient. A sufficient fall should be provided to enable the drains to clear themselves easily. Drains should not run up and down, but across hill sides. Orchard soils should

now be so cultivated and arranged as to throw off moisture and to attract the sun's rays. No weeds, fallen leaves, or mulch should be allowed to lie about the surface.

In addition to planting young trees, many established subjects can be transplanted or removed always provided it is effected with the utmost care. Pears, plums, peaches, and apricots will all bear removal if their roots are not hacked about or otherwise injured. Of course this treatment does not apply to old established trees, but to those in the first years of their existence. Apples and cherries cannot be transferred, they resent such a disturbance of their roots.

An Enormous Grape Vine.

The Year-Book of the United States Department of Agriculture for 1894 states that there is now standing in California a vine which is considered the largest in the world. It was planted in 1842 by a Spanish woman. Beneath its spreading branches, which cover nearly half an acre, 800 persons could find protection from the sun's heat. The first election in Santa Barbara County, under American rule, was held beneath its ripening fruit. The vine is of the Mission variety. In 1893 it bore 8 tons of grapes, and in 1895 over 10 tons. The trunk of this vine is 7 ft. 8 in. in circumference. The celebrated vine in the conservatory at Hampton Court, England, planted in 1769, had, in 1830, a stem 13 in. in girth, and a principal branch 114 ft. in length, the whole vine occupying more than 160 sq. yds. In one year it produced 2,200 bunches of fruit, weighing, on an average, 1 lb.—in all, about 1 ton of fruit.

It is difficult to accurately estimate the age of vines by the usual method of counting the rings, because the yearly growth is not distinctly marked. Some maintain that the vine equals, and even surpasses, the oak in point of longevity. Even in America it has been impossible to ascertain the age that planted vines will attain, and the time that has elapsed since its discovery would not be sufficient

had the experiment been begun when Columbus landed in 1492.

Pliny mentions a vine 600 years old. Miller tells us that some of the vineyards of Italy held good for 300 years, and that vines 100 years old were accounted as young. It was recently stated that there are still vines growing which were planted by the poet Horace on his farm. Some of the vines of Burgundy, Professor Bosc says, are more than 400 years old, and doubtless there are native American vines of much greater age. The writer of the article on the grape vine and its fruit in the Year-Book mentioned says that he never saw a vine amongst the endless numbers of natives that abound in the American forests that died from the effects of age.

Sulphur Fumes for Preserving Fruit.

Peel peaches, cut in halves and remove seeds; arrange in a wooden tub, leaving a hole in centre for vessel that is to contain the sulphur. If 4 gallons of fruit is desired, pare enough fruit for 6 gallons, as this allows for shrinkage. When fruit is in tub, place sulphur at the rate of 1 teaspoonful to each gallon of fruit used in vessel in centre of tub, ignite it and cover whole tub closely for 4 hours. Remove fruit, and place in stone jars; cover with a cloth. Fruit preserved in this way keeps fine all winter, and tastes like fresh fruit. Apples, pears, or tomatoes are delicious prepared this way.

‘Queensland Agricultural Journal.’

Plantains.

Plantains are a peculiarly luscious fruit, grown in Western Australia in considerable abundance, and they are much favoured for dessert purposes, also as a first food for invalids after emerging from typhoid and other illnesses. They resemble bananas in appearance, being similar in shape, but shorter and thicker; they also resemble that fruit in substance, but there is a more distinctive flavor about them, suggesting the richness

of the passion fruit with a suggestion of the apricot character. They will carry on a voyage as soundly as bananas, and it seems rather strange that a considerable trade in this luxury has not sprung into existence between Melbourne and Perth. Such fruit should sell well here.

Plantains grow well near Perth, in sheltered spots on the banks of running streams, and although one stem or plant only carries a single bunch of fruit the producing capacity per acre is large, as the plants grow very closely together, and thrive luxuriantly in the warm districts, where the soil and water conditions are suitable.

Some visitors from Western Australia brought a parcel of the fruit to Melbourne during the Easter holidays, and they arrived in a perfectly sound state, although not specially cared for on the voyage. Friends who sampled them pronounced them excellent in every way, having a character superior to the rather dull insipidity of the banana, and a food value that makes it easy to understand why it is so warmly favoured by the medical profession for the use of convalescents. Maybe if a start were made in the importation of plantains they would soon become popular.

—‘Australasian.’

Interesting Orchard Notes.

An exporter of apples remarks that among the countries that would buy our fruit if they could are Russia, Spain, Norway, Denmark, France, and Italy. A few cases of apples went to Genoa this season. Germany is already a large and growing buyer; and Britain's demands would increase with our power to provide.

* * * * *

The fruit from the great vine at Hampton Court Palace is used by the King's household. Last season it produced 250 bunches of grapes. They averaged 2lb each. During the ‘thinning out’ process every year it is the practice to cut away about a thousand bunches. The vine is 140 years old, and measures 54 in. round the girth a foot above the ground.

Amongst the Grapes.

BY E. MASON

To the immediate south of Adelaide, between the hills and the sea, lies a splendidly fertile stretch of country. It is called the Sturt district, the Marion district the Brighton district—any one or all three. It could not have been the prolific land mentioned in Numbers, but it might well have been. 'Spies' were sent into the land of Canaan, and 'now the time was the time of the firstripe grapes. . . . And they came unto the brook of Eshcol, and cut down from thence a branch with one cluster of grapes, and they bare it between two upon a staff.'

Recently a small party of Adelaide residents visited the Sturt district at 'the time of the firstripe grape,' and coming to the brook of Sturt, they not only cut down one cluster of grapes but several, and saw so many others that their quantity was estimated not in units but in tons. The 'spies' on this occasion consisted of Mr. W. Matson, Mr. A. D. Bruce (manager for B. Seppelt & Sons, Ltd., owners of the show winery of Australia), Mr. George Auld (of W. P. Auld & Sons), Mr. A. Mackie (Secretary of the South Australian Commercial Travellers' Association), Mr. Ernest Whittington (of The Register), and the writer.

Mr. Matson was our host. We were undertaking the journey at his invitation, and it was his vineyard we were to visit.

A little way out of the city—some two miles say—we entered the fertile country of which I am speaking, and thence onward we passed prosperous-looking residences and gardens and horse paddocks and cow pastures galore. But one thing struck me, which was this: that fully two-thirds of the land, was not doing what it ought to do, was not carrying the people which it ought to carry, and that if the magnificent area was fully occupied it would be yielding a fine living to thousands of people instead of a few score.

Of course it is not cheap land now, as our party talked of values of £100 an acre

without river frontages. But even at that figure the acres would pay to till, because the advantage of the nearness of the market afforded by the city must not be overlooked.

As we drove along we saw signs that Time plays the part of local optionist. We passed the remnants of several famous old hotels, the names of which must be as familiar almost to old colonists as their own. We saw the Beehive on the Bay Road, now closed up and given over to the rats. We passed the remains of the Kangaroo, of which nothing remains but the cellar. And we went by the old Tanners' Arms, which is turned into a private dwelling with a nice garden around it. Next we pulled up at the Lady MacDonald Hotel, for no other purpose than to rest the horses. This well-known wayside house is also doomed as it is one of the sufferers of the Sturt local-option poll, a renewal of its licence having been refused.

No far from the Lady McDonald we came to Mr. Matson's vineyard, on a corner of the road. Only part of the property is given over to vines, the other portion being devoted to market gardening purposes by Mr. Nicholls, who works the estate in conjunction with Mr. Matson.

The soil is tip-top being a rich alluvial. Right at the bottom of the garden is the Sturt River, from which water is drawn by an oil engine for irrigation purposes.

We came to the grapes. The amateurs stood amazed at the prodigality of the crop, while our two professional members—Messrs. Auld and Bruce—after a critical survey turned round and congratulated the owner on his prospects. Five acres are under Don Pedro grapes and three acres under other sorts, such as sweetwaters and muscatels. We were told that some of the vines are over sixty years old, and when we looked at the trunks of some of them—as thick as a man's thigh—we could well believe it. One vine, which is affectionately known as 'Daddy' is about a foot through, and as much as 120 lb. of grapes have been cut from it.

At the time of our trip Mr. Matson

anticipated that he would get thirty tons of grapes from his five acres of Don Pedros, and I have learnt since that his expectations have been more than realised. The vines get the benefit of bonedust manure every second year, but they are not irrigated, although one dry year the owner gave them water from the Sturt with good results.

We wandered through the vines, and although we ate as many grapes as we could and took more away with us, the prospective thirty tons did not seem to be seriously reduced thereby. We also sampled Mr. Nicholls' tomatoes and almonds, and had only one fault to find with them, which was that we really could not eat as many as the owner earnestly urged upon us. We noticed amongst the vineyard too evident signs of the presence of the starling, which someone so kindly introduced to Australia as a blessing we should appreciate. We asked Mr. Nicholls if he combated the starling by the use of poison.

'Poison a starling!' he exclaimed. 'The only way to kill a starling is to shoot it down, pull its head off, and stamp on the remains. Only then can you be sure that it is dead.'

We left Mr. Matson's vineyard with regret. On the way home we called in at Mr. Frank Hamilton's place, Ewell Farm in the Marion district. We saw his vines and his currants—which were ready for market—and we saw his cellars. He has some 50,000 gallons in the vats, which vats, by the way, he makes himself. We tried at his positive requests, his Pedro vintage and his special port. Our two experts, with that peculiar twist of the eyelid which amateurs envy but can never acquire, held up their glasses towards the light.

'Good' said Mr. Bruce: 'but' (with deliberation) 'do you know, I like Seppelt's field wines best.'

'Well, well,' said Mr. Auld. 'There's no accounting for taste. As for me give me a Yalumba vintage. What do you say, Mackie?'

Mr. Mackie (with emphasis, and sipping some Ewell claret), 'Let 'em all come.'

After the laugh which greeted that reply was over, we drove away, and soon hearty thanks to our host ended a pleasant afternoon.

[This article was unavoidably crowded out of our last issue.—Ed.]

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"Deeds of Kindness."

Suppose the little cowslip
Should hang its little cup,
And say, 'I'm such a tiny flower
I'd better not grow up.'
How many a weary traveller
Would miss its fragrant smell,
How many a little child would grieve
To lose it from the dell.

Suppose the glistening dewdrop
Upon the grass should say,
'What can a little dewdrop do?
I'd better roll away.'
The blade on which it rested,
Before the day was done,
Without a drop to moisten it,
Would wither in the sun.

Suppose the little breezes
Upon a summer's day
Should think themselves too small to
cool
The traveller on his way,
Who would not miss the smallest
And softest ones that blow,
And think they made a great mistake
If they were talking so?

How many deeds of kindness
A little child may do,
Although it has so little strength,
And little wisdom too!
It needs a loving spirit,
Much more than strength to prove
How many things a child may do
For others by its love.

The Story of the Apple Tree.

Nobody would expect a boy or girl, when heartily enjoying a nice apple, to think about the long history of this favorite fruit. Probably, next to the grape, the most famous of all fruits is the apple—for ages beyond reckoning it has been known to be both pleasant and wholesome. The bible mentions the apple five times, but the tree does not grow well in Palestine, so it seems likely that the word translated 'apple' should be 'citron,' also a favorite Eastern fruit. Homer mentions apples, it is supposed, but it is not easy to tell what many ancient names of this kind mean; certainly the fruit was familiar to and valued by the Greeks at a later time.

Greece was famous for its apples, and those grown in the Island of Eubœa were particularly choice. Phillip, King of Macedon, and his son, Alexander the Great, were so fond of apples that a dish of them was always put upon their dinner-table, we are told. At Athenian, wedding feasts, while Solon was lawgiver

a rare and expensive apple was handed round to the guests, but he forbade any person to eat two, except the bridegroom. Later on the Romans, conquerors of the world, collected from the countries they visited all sorts of valuable fruits, and got many varieties of the apple. Orchards were numerous all over Italy in the time of the Emperors.

We have in Britain a wild apple called the crab, which shows us pretty pink and white flowers, producing small and very sour fruits. At one time cottagers used to squeeze crab-apples, and the juice, known as 'verjuice,' was a remedy for burns and similar injuries. Some time before the Romans came to England, shoots of good apples had been brought from the Continent to Somersetshire. It is said that this tree was regarded with great reverence by the old Druids, because they thought the sacred mistletoe would only grow upon the apple and the oak. Honor was given to the ancient b rds of Wales by crowning them with an apple spray. No doubt William the Conqueror and his Normans brought over several sorts of new apples. The first named in history is the permian, referred to when King John reigned. Another old apple was the costard; it is thought the costermongers (coster mongers), the street sellers of fruit and vegetables, were named from this apple, sold in old London as early as the time of the first Edward. Henry VIII. made it a felony to cut the bark of an apple-tree. Several writers of Tudor days mention the practice of eating pippins with cheese; they spelt the word 'peppin' at first. The golden pippin, famous as a Sussex apple, was so liked by foreigners that some were grown to send abroad. Catherine, Empress of Russia, much liked this apple, and had a supply of them for her table, each wrapped up carefully in silver paper to travel. By order of Charles I., the ambassador in France collected large numbers of young apple trees, which were sent to England. A great many of these were planted about Herefordshire, so that it became a popular saying that the country was like one large orchard. Cider, made by fermenting the juice of apples, was a much commoner drink formerly than it is now, especially in the eighteenth century.

We often hear people speak of pomades, and plenty of them are advertised in the newspapers. The name is connected with poma, the Latin for apple. Gerard says in his 'Herbal,' that a preparation for the hair was made from the pulp of apples, beaten up, mixed with lard and rose-water.

Some old books mention a drink oddly called 'lamb's wool' by the English, which has nothing to do with either lambs or wool. It was taken on several church festivals, especially on Lammas Day. Vallancey says the name was Lamas-ubval, at first, and it seems to have been rather like the Christmas wassail bowl. Apples were put on a string, and

and roasted before the fire; then they were placed in a bowl of spiced liquor.

Though in these days we have many sorts of pastry, the old-fashioned apple dumpling is still a favourite. Formerly it was thought much more of, and the famous Coleridge said that a person cannot be a bad character if he is fond of dumplings. One method of cooking them was to put a piece of pork or bacon inside with the apple, so that the dumpling made a good dinner by itself.

—'Chatterbox.'

When Reading or Writing.

Don't hold a book above or below the level of the eyes.

Don't read facing the light.

Don't tax your eyes when you are tired and hungry.

Don't use your eyes when they smart, or face the wind on a dusty day without a veil or glasses.

Don't fail to remember when writing that the light should fall over the left shoulder, because of the shades that would otherwise be cast by the hand or pencil.

Don't fail to remember that in reading the light should come from the right, as the book is apt to be held in the left hand.

Don't forget that if artificial light is used, it should be steady and bright enough to illuminate the work without dazzling the eyes.

Conundrums.

What is it that the rich man wants, the poor man has, the miser spends, and the spendthrift saves?

Nothing.

† † †

Why as a demon tennis player
Does baby beat them all?

Because his racket is immense
He'll never miss a bawl.

† † †

Why is a fly taller than most men?

Because it stands over six feet without shoes and stockings.

† † †

What would a diamond become if placed in a basin of water?

Wet.

† † †

What part of a tree is the most polite?

The bow (bough).

† † †

What is that which never asks any questions, and yet requires many answers?

The door-bell.

WIT AND HUMOR.

Sam—'Mamma, did God make you?'
 Mother—'Yes, dear.'
 Sam—'And father, too?'
 Mother—'Yes.'
 Sam—'And sister, too?'
 Mother—'Certainly.'
 Sam—'And me, too?'
 Mother—'Certainly, foolish.'
 Sam—'He is improving right along, isn't He?'

'You are the light of my life,' she said to him, as they tenderly and lingeringly bade good night at the door.
 'Put out that light,' growled her father at the head of the stairs, and the door slammed.

A Sunday-school teacher discovered, to her great horror, that some of the small members of her class had taken as literal truths the tales of ancient gods and goddesses which they had read in a child's mythology at school.

She determined to destroy this belief by simple logic, and asked, 'Who was it that supported the world on his shoulders?'

'Atlas, miss,' a little girl promptly responded.

'Yes. Now think. If he was supporting the world on his shoulders, of course he could not be standing on it. Now, what supported Atlas?'

A ponderous silence prevailed for a minute, then the little girl spoke up. 'Oh, I know! He married a rich wife!'

First Deafmute: 'If you objected to his kissing you, why didn't you call for help.'

Second Deafmute: 'I couldn't. He was holding both my hands.'

'Can't you find any work at all?'
 'Plenty, sir; but everybody wants references from my last employer.'

'Can't you get them?'
 'No, sir; he's been dead twenty-eight years.'

A man very much intoxicated was taken to the station. 'Why did you not bail him him out?' asked a bystander of a friend of his.

'Bail him out!' exclaimed the other. 'Why you couldn't pump him out.'

'I passed old Welby the other day—only just caught a glimpse of him.' He seemed pretty run down I thought.'

'What gave you that idea?'
 'Well, they were pulling him out from under a motor-bus as I passed.'

'Now,' said the physician, 'you will have to eat plain food and not stay out late at night.'

'Yes,' replied the patient, 'that is what I have been thinking ever since you sent in your bill.'

Sleepy Guest: 'Halloa! is it 7 o'clock? I declare I am so sleepy that I can't open my eyes.'

Head Waiter (who has knocked at the door): 'I'll bring you your bill, sir, if you like.'

'I'm afraid we shall keep you rather busy next month, Hetty. My daughter's coming out.'

Housemaid—'Is she really, ma'am. Why, so is my father.'

Mrs. Paull—'Did you ever catch your husband flirting?'

Mrs. Holmes—'That's just the way I did catch him.'

Jones—'Yes, sir; that boy of mine is a wonderful piano player. 'Why, he can play with his toes.'

Brown—'How old is he?'

Jones—'Fifteen.'

Brown—'I've got a boy at home who can play with his toes, and he is only one year old.'

'Tell me, Johnny,' said May Brightley's admirer to her young brother, 'who is this other fellow that has been calling on your sister?'

'I don't know his name,' replied Johnny. 'I just call him 'April Showers.''

'What for?'

'Because he brings forth May flowers.'

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THE FARM.

Rotation of Crops.

All who are engaged in farming pursuits know what is meant by rotation of crops, but how many in this State practise it? One main reason for the neglect in making different crops follow each other in different years on the farm may be traced to the wonderful fertility of most of the arable land in farming districts. So rich are many of these soils that before a good crop of wheat can be raised from them, a series of crops of maize, potatoes or roots must be taken off, otherwise coarse straw will be produced at the cost of the grain. On such soils oaten straw is often so thick and coarse as to be useless for hay-making, and when wheat is at last grown heavy crops have been har-

vested year after year for more than twenty years without the use of manure or recourse being had to rotation. But, on many soils, rotation is very desirable. On these, if potatoes are made to follow potatoes year after year, the ground eventually becomes so infected with disease that only scabby tubers can be produced. It is the same with clover. After a time, unless clover is preceded by, say, wheat, and succeeded by potatoes, and if the ground has been occupied by it year after year, the land becomes what is known as 'clover-sick' and the crop fails. Land kept continually under cereals becomes foul with weeds. In the case of small fruits, such as strawberries, too long a continuance of the crop on the same ground results in the land being filled with insects. Then, it

should be considered that many plants feed only in the shallow surface soil, leaving stores of food deeper in the ground untouched. In order to utilise these plant-foods in the deeper sources deeper feeding crops must be planted. Furthermore, there are crops which gain their entire sustenance from the soil, whilst others, like the legumes, draw a portion of their food, in the shape of nitrogen, from the air. The former impoverish the soil, the latter enrich it. Again, different crops draw unequally on the different food elements of the soil. A crop of beans or peas, for instance, draws heavily on the potash and lime, in the soil, whilst a crop of wheat requires relatively small amounts of lime and potash, but large amounts of phosphoric acid. The same soil will, therefore, more easily produce a large crop of beans or peas, and a large crop wheat following each other, than if two successive crops of beans or two successive crops of peas were grown.

For all these reasons—the maintenance of soil fertility, the renovation of impoverished soils, the production of large crops, the destruction of insect and weed pests, and the more economical distribution of labour throughout the year, and hence greater profits—a proper system of rotation is considered essential to continued success in modern farming. The rich farming lands of the older countries of Europe have been maintained in fertility for over a thousand years by the help of rotation, fallowing, and manuring.

There are certain systems of crop rotation generally designated by the number of crops entering into them

For GOODNESS Sake Use
VICEROY TEA.

Thus, we have the three-course rotation, into which three different crops enter, such as wheat, followed by clover, and the latter succeeded by potatoes, after which wheat may again be grown. A four-course rotation may also be employed, although the three-course is most common wherever rotation is practised. A good four-course rotation consists of wheat or rye followed by clover, then maize, to be followed by oats. As soon as the oats are harvested the ground should be got ready for the next crop on the rotation. A five-course rotation would consist of maize, potatoes, rye, and clover, or two or three years of lucerne. Where cotton is grown, a good rotation is maize the first year, oats and cow-peas the second, and cotton the third year.

It should be observed, however, that the rotation to be followed on different farms will necessarily vary with the nature of the soil, the seasons, the markets &c., so that no one hard-and-fast system can be given which will serve as a guide to all farms. Some of the general principles that should guide in laying out a systematic rotation are as follows:—

1. Have at least one leguminous crop in the rotation.
2. Have at least one cultivated crop.
3. Rotate shallow-rooting crops with deep-rooting crops.
4. On leachy soils, have a growing crop on the land all the time.
5. Avoid bare summer fallowing.
6. Do not rotate small cereals with other small cereals.
7. Plan the rotation so as to have about the same amount of forage every year.

8 Keep stock on the farm.

9 Use the farmyard manure thus made—unless it be thoroughly rotted—to the rank-growing crop in the rotation, such as maize.

‘Queensland Agricultural Journal.’

The Country Land Boom.

The rise in the value of farming-lands during the past few years has been remarkable, and the ‘retired farmer’ is now a personage frequently met with, not only as a resident of Adelaide and suburbs but also of country towns. Fertilizers and good seasons are the usual explanations of the boom, and no doubt this view is correct, for there has been little if any increase in the value of town properties, in spite of the increased demand for dwelling houses. A few instances of the rise in country lands will be of interest to our readers:—Hundred of Booyoolie, 600 acres, sold thirty years ago for £2 10s. per acre; fifteen years later for £4 7s. 6d.; and this year half the property has been sold at £25 per acre. This very high price is due to the whole of the land growing fine crops of lucerne. Farms on the Gullnare Plains have changed hands recently at £9 to £10 per acre, and about Laura and Jamestown at £7 to £8. Another farm with 700 acres of rather poor soil in the Hundred of Booyoolie was originally selected at 25s. per acre, afterwards sold for £2, and about a month ago for £7 5s. . . . These are merely typical instances, the increases being perhaps most marked in the ‘Northern Areas,’ but the same results are visible on York Peninsula in all the well-watered land eastward of

the Hummocks towards the Burra and Kapunda, and southwards towards Gawler and the city. All these high prices are indicative of solid agricultural prosperity but it is probable that in some instances buyers have gone beyond the values which are justified from a strictly commercial point of view.

S.A. ‘Journal of Agriculture.’

Miscellaneous Items.

From ripened maize stalks are now obtained cellulose, celluloid, smokeless gunpowder, lacquer, roofing cloth, and a substance equal to papier mache.

As a general rule potatoes are fit to dig when the haulms wither and die off, yet there are occasions when that is not a true test, due largely to climatic changes.

The rapid advance made in motor cultivation and motor harvesting operations brings within the range of practical operation the adoption of motor machinery in our agricultural areas.

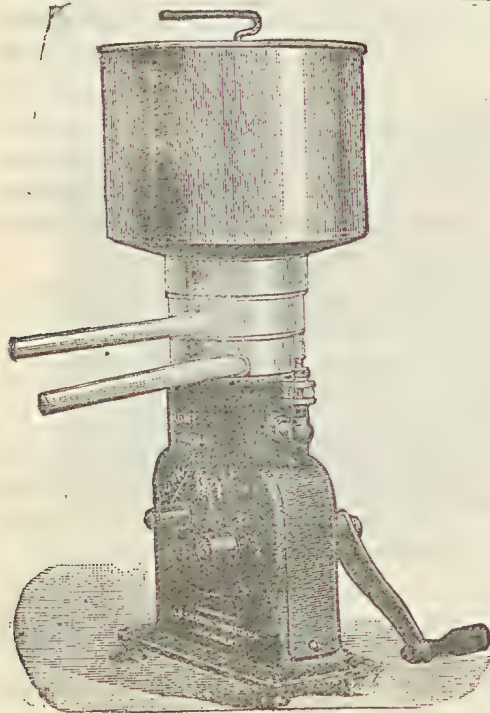
No hay has a higher feeding value than lucerne. It can be so easily baled and so expeditiously transported that it has numerous recommendations not held by other crops.

No animal of the farm will stand as poor treatment as the pig and thrive as well. It can be said with the same degree of truth that no animal will respond more quickly under good treatment.

No incident in the growing and breeding of farm animals demands an exercise of discriminating judgment and skill than the judicious breeding of a flock of sheep.

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The Dairy

Champion Dairy Cows.

M. A. O'CALLAGHAN, Chief Dairy Expert.

The four cows described here will give local farmers an idea of the standard to which the Americans have reached in the development of the best types of dairy cattle. The Jersey, the Guernsey, the Holstein, and the Ayrshire are represented. Their yields are something phenomenal, but when the Americans go for a championship they generally make things move along, and they certainly have obtained some wonderful records

from representative specimens of the different dairy breeds. No doubt in obtaining the yields given, great skill and care have been put forth in the feeding of the individual animals, and it is a pity that instead of giving the record for twelve months we have not the record for a milking period only, showing at the same time the number of days the animals were in milk.

We will first take the Holstein cow Colantha Fourth's Johanna, as she stands at the top, not only in Holsteins, but it is claimed she has beaten all dairy cows of any breed in the world. Her record for one year, namely, 27,432 lb. of milk, which gave an average test of 3.64 per cent. of butter fat, or a butter-fat yield of 998½ lb., is nothing short of phenomenal. She is owned by Mr. W. J. Gillett, of Wisconsin. She is in shape an almost perfect milking type. Her udder development is great, and her constitution as evidenced by her well developed body standing on short legs, is considerably above the ordinary. She has the flat incurving thigh of all great milkers, and the high arched flank, together with very prominent milk veins. Her eye is bright and prominent, and her nostrils large and open, with a strong mouth, all denoting

points which are sought for by every dairyman. Her fat test is high for a Holstein, but with selection there is no reason why this great breed should not prove to be up to general standard for fat.

The Guernsey cow, Yeksa Sunbeam, comes next in yield of butter-fat. She also looks plain owing to having been dehorned, but she is a very typical animal, with plenty of substance and milking conformation. Her mouth is very well developed, and her neck is strong without being coarse. The thigh is very flat, and the flank is arched, though not quite so much as in the Holstein. She is a little high at the setting on of the tail, but this is really a dairy point. Her yield is 14,920 lb. of milk for one year, with an average test of 5.74 per cent. of butter-fat yield of 857.15 lb. She is owned by the Rietbrock Estate, Wisconsin, and is the champion Guernsey cow of the world.

The Jersey cow, Jacoba Irene, looks an animal capable of great deeds in the way of milk and butter yields. A wonderfully deep body, with a well-developed udder. Her nostrils are very large; her mouth is strongly developed; her eye is prominent. She is very high at the setting on of the tail, and this

makes her look hollow-backed. She has a very thin flat thigh, high arched flank, and a great development at the back of the udder, together with the well-placed teats. She is, if not a handsome Jersey from a breeding point of view, at least a very handsome type of dairy cow. Her record is for ten months in 1908, and was 15,503.7 lb. of milk, with an average test of 5.5 per cent. of butter-fat, yielding 853.9 lb. of butter-fat. This animal is owned by Mr. A. O. Auten, Illinois, and is the champion Jersey cow of the world.

The Ayrshire cow, Rena Ross, while not equalling the others in the amount of butter-fat she has yielded, has still put up a record to be envied by all breeders. She gave 15,072 lb. of milk, with an average test of 4.26 per cent. of butter fat, or a total of 643.2 lb. of butter fat. She is owned by Mr. John R. Valentine, Pennsylvania, and is the champion Ayrshire cow of the world. This animal is of a very vigorous, virile character, representing the old rather than the modern type of Ayrshire. Her horns are of the shape of the Ayrshire of fifty years ago rather than that of the animal we see to-day in our show rings. She appears to be of an extremely active temperament, and is no doubt a very highly-strung animal. She evidences, like all the other champions, a great constitution, without which, of course, it would be impossible for a cow to consume and digest sufficient food to enable her to put up a record anything like that stated. The head and neck are well placed and shapely but strong; the barrel is deep; the flank well arched; the thigh flat and incurving; the tail is set on high, but its length is either deficient or its brush has been cut.

I have no doubt the day will come when our breeders and dairy-farmers will attempt to do something in the way of advanced dairy records over a lengthened period; but, before we can approach anything like the results given, we must devote considerably more attention to what is known as hand-feeding, for even during the summer months, when grass is abundant, cows will give an improved yield by the addition of more concentrated foods which help to stimulate them to a higher capacity.

— 'Agricultural Gazette of N.S.W.'

Modern Dairying Methods.

Recent reports to the effects that syndicate schemes are in course of development for the carrying on of extensive ranching operations in Northern and North-Western Australia direct pointed attention to the fact that the vast territories of Queensland, South Australia and of the western state have been but partly exploited so far as cattle raising is concerned. There appears to be much reason to think that many districts bordering upon, if not actually within, the sub-tropical regions of the Commonwealth may have butter and cheese yielding potentialities hitherto little dreamt of in the south; and seeing that the Northern Territory and the adequate settlement of the region, for defence as well as for commercial and developmental reasons, is now under consideration by federal politicians, it is not inappropriate to suggest dairying as a likely means by which at least a portion of this 'no man's land' can be put to practical account. In Queensland, the wonder-working improved machinery, scientific plant, and cold-storage processes have made dairying possible in districts that were at one time supposed to be far too hot for the pursuit of this industry.

If modern method and equipment in dairying can do so much in the state mentioned, where conditions akin to tropical prevail over a considerable area, why should latter-day science not make it possible to convert millions of acres around our northern and north-west coast into prosperous dairying country? Science as applied to the cooling of chambers has made dairying possible in many southern districts, where at one time the making of sound commercial butter was a practical impossibility; and science similarly applied has conquered the hotter parts of Queensland. Seeing therefore that climate has been largely subjugated by advanced appliances, there is no valid reason why areas even further north should not also be mastered in like manner. Nature is bountiful in the far north, for grasses there are more abundant and nutritive than those found elsewhere. Natural waters also abound. Cattle thrive and fatten with astonishing rapidity; and with so much already performed by nature in connection with the live-stock industry, it would appear that a long step has already been taken in the direction here indicated. The foregoing, however, is basely largely upon surmise,

albeit the basis so far as it carries us is a sound one. What requires to be done in connection with this matter is to make expert inquiries on the subject, and such might well be by the federal authorities, while dealing with the Territory in a general way, prior to finally deciding upon some practical plan for settling the locality.

— 'Australasian.'

News and Notes.

Even the best cows vary from year to year in their butter-fat production.

* * * * *

The purchase of bran at the present time absorbs most of the profit from the cow.

* * * * *

Manipulation of the udder is absolutely necessary in some instances before all the milk can be drawn by the machine.

* * * * *

Heifers in their first lactation apparently give better results by machine milking than do aged cows that have been accustomed to hand milking for one or more years.

* * * * *

Now that it has been shown that testing and weighing, which everyone can do, is absolutely the only true test of the cow's value, it should be a simple matter to raise the dairy output.

* * * * *

Avoid loud talking while milking. Anything which attracts the attention of the cow from the operation of milking affects the secretion, and this secretion goes on during the drawing of the milk.

* * * * *

The dairy farmer must breed only from the best cows, and must take care to mate his cows with a bull of equally good quality, because it is certain that the qualities of the father, as well as the mother, are passed on to their offspring.

* * * * *

The efficacy of boric acid as a remedy for sore and otherwise damaged teats seems to have been the result of a chance discovery. The use of a boric acid solution as a wash for milkers' hands before milking resulted in the disappearance of all soreness, chaps, &c., from the teats, and thus established the value of this simple remedy for the dual purpose of an antiseptic and anti-irritant dressing.

One thing the dairyman should study is to raise all his feed; for he cannot make money out of feed at famine prices.

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The Poultry Yard

Diseases of Fowls.

G. BRAGSHAW, in the 'Agricultural Gazette of N.S.W.'

(Continued from last issue.)

—Bronchitis.—

Bronchitis is an inflamed condition of the bronchial tubes, or air passages, and mostly occurs in connection with roup. Indeed, it rarely exists as a separate disease in a fowl. There is usually a quantity of mucus in the throat, quick breathing, discharge from the nostrils, and at times, one or both eyes become inflamed; there is dulness and loss of appetite. There are many causes for this trouble. Draughty, or even too close houses have been responsible for attacks, while foul air and filthy conditions sometimes bring it on. Prize fowls sent by rail to shows or private customers frequently develop the disease, or when being carted from a hot show-room to the railway or other destination, get cold, which quickly develops into bronchitis. A difficulty in breathing, and noise or rattle in the throat, and coughing are sure signs of the disease. Sometimes the noise becomes chronic, and I have known instances where fowls were apparently healthy, with the exception of this noise. The simplest effective treatment is, 2 or 3 drops of spirits of camphor in a teaspoonful of glycerine, two nights in succession, which should be followed with about 10 drops of sulphuric acid in a pint of the fowls' drinking water. Should the fowls refuse to drink the mixture, a spoonful of sugar may be added. In more severe cases, 3 drops of chlorodyne in a teaspoonful of sweet salad oil should be given, which usually effects a cure.

—Inflammation of Bowels.—

The bowels may be the seat of an attack of inflammation, which may arise from exposure to cold or damp, blows or

wounds, irritant poisons, or long continued diarrhoea. Thirst, and a great heat on the under parts of the body, are the usual marked signs of the disease.

The patient should be given a teaspoonful of castor oil along with 4 drops of laudanum. This should be followed by half a teaspoonful of the following mixture every three hours:—2 drachms of hemlock juice, 12 drops of Belladonna juice, 1 drachm of syrup of chloral hydrate, 2 drachms of syrup of poppies, and 1 ounce of water.

(To be continued.)

The Price of Eggs.

Until the Government took the matter of the export of eggs in hand there was always a period of low prices—so low that eggs were not worth gathering and sending to market. The first shipment was looked upon as a fad by most in the trade, and many amusing prophecies were made as to failure. In spite of a few minor defects the shipment was a success and proved that eggs could be landed in England as fresh as when they left Australia, and further that there was a better price to be had. Next season three shipments were arranged for, and, as the time drew near, the price in Adelaide began to rise in an unwonted manner. This alarmed some of those who agreed to ship, and unfortunately not a few people regarded their bond to ship as an agreement to be lightly broken. Others from selfish motives, did not support the movement, as they openly stated that they would profit by the enhanced local prices. It became necessary to cancel space in one of two steamers, and after very careful deliberation the arrangements were altered. The price, however, held strongly until the last shipment sailed, and then eased, in spite of the fact that the withdrawal of these small parcels could have no effect on local prices. These shipments proved successful.

Last year (1903) complete arrangements were made for several shipments of eggs, but the prices ranged higher than ever, and market reports were saturated with references to strong demand from

the other States. In the face of local prices, which on our previous experience left practically no margin, it was futile to attempt inducing friendly co-operation among the many merchants who are prepared to assist. Finally it was decided to purchase and ship some eggs, and although nothing was said on the matter the price went up with a jump.

—S.A. 'Journal of Agriculture.'

Management of Pullets During Autumn and Winter.

H. V. Hawkins, Poultry Expert.

CLEANING PENS.—When the cold nights begin to come it is time to bring the pullets into their winter quarters. They should then begin to show signs of maturity. Prior to penning them, clean up the pens thoroughly, disinfect the sleeping quarters, renew perches, close up all crevices and cracks, see that the floor is level, and cover it with sand or gravel; also place a board under each perch so that the droppings may be easily removed and the floor kept perfectly clean.

FEEDING.—The question of feeding is very important. During the spring and summer the pullets will have had an abundance of green grass, seeds and insect life. This being so, suitable substitutes must be provided, adding to, rather than reducing, the quantity of animal food they have been accustomed to get in the shape of insects. If skim milk can be obtained at a reasonable price, or is available on the farm, it will be found excellent food. Very often one can secure green bone and scraps of waste meat from the markets at a reasonably low cost. Any of these, provided they are fresh, may be utilised, as well as kitchen scraps. No one should be guilty of feeding decayed meat to poultry. Good prices for fresh eggs cannot be expected if fowls eat putrified food of any kind. The green food may be supplied in the form of chaffed lucerne, clover, or beets, and a little raw onion, boiled potatoes may occasionally be added to the morning ration.

Morning.—I am strongly of opinion

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that the morning meal should consist largely of pollard, 2 parts (by measure); bran, 1 part; with 1 lb. at least of animal food (lightly boiled) to 30 pullets daily. A fair amount of green food should be added and mixed well, and the whole should be thoroughly worked up to a crumbly consistency.

Should some of the pullets appear backward in their adult feather production, a teaspoonful of linseed per bird in the mash will have beneficial results.

Evening.—Half an hour before roosting time, give a good handful of mixed wheat, short oats, and crushed maize—equal parts. Scatter the grain in dry litter, and make them work, as it helps to promote egg production,

There is great variety in thus feeding, and as eggs are usually worth 2d. each in April and May, it pays to pen in small yards, protected from cold bleak winds and provided with comfortable houses. Well-fed pullets so treated will net at least 6s. profit per bird.

SHELL, GRIT, AND WATER.—Ground oyster shell has no equal for production

of firm egg-shells. Each pullet will annually consume 7 lbs. Provide a box with plenty of sharp pieces of grit, such as gravel and broken crockery. The addition of charcoal and crushed burnt bones twice a week will be found beneficial. Keep the water vessel always full; clean out daily and place in a sheltered spot

NEST BOXES.—Encourage the pullets to lay in a secluded corner. Make the nests dark and inviting. Do not allow them to lay in the house. Shun all bad smelling disinfectants, as the eggs, being very porous, may easily become tainted; for example when the nests has been sprinkled with carbolic powder or other similarly strong deodorizer.

EGG YIELD.—Bear in mind that the real cost of eggs can only be estimated by the quantity harvested. You cannot expect a large egg yield by feeding the stale loaf to your pullets.

—Victorian "Journal of Agriculture."

Sixteen billion eggs are laid by the hens of the United States each year.

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early period, and not be allowed to swell at the expense of the plant. A slight twist will easily detach the bud that is not wanted. The leaves of camellias often get dirty at this time of the year. A black, sticky substance is found on them, which prevents respiration, and soon causes the plant to fall into bad health. Aphids sometimes secrete a sweet substance on the foliage, then dirt from the surrounding atmosphere collects and the plant becomes unsightly. Sponging the leaves with a solution of soft-soap in hot water will cleanse them; but, if a small quantity of kerosene be added to the solution, the work will be done more quickly and effectively. The oil will not mix with the suds, unless the liquid is well churned.

Wandering Plants: How they Take Root.

Curious among vegetable growths and one which is seldom seen of men is the rootless cactus of the Californian desert. This plant, a round, compact growth, rolls about the level floor of the desert for some eight or nine months of the year, tossed hither and thither by the winds which blow with fierceness over all of California's sand plateaux, during those months. At the coming of the rains, or rather the cloudbursts, which sweep the desert in its springtime, this cactus takes root wherever it happens to have been dropped by the last wind of which it was the plaything and immediately begins to put out around it small shoots, which in turn become cacti, exactly like the parent plant. The roots do not penetrate the soil deeply, but spread often over a circle whose radius is not less than 10 feet. These plants get every bit of moisture and plant food to be had in the territory they cover.

Many people think that Ferns should not be given liquid manure. This is a mistake, as a little decayed manure liquid, given once a week is excellent; as also is weak soot water applied twice a week during the growing season.

The discovery of rose oil is said to have taken place in the following manner. As far back as 1519 a mahjurat in India planted musk and damask roses extensively. At a great wedding in 1612 certain fountains ran with scented rose-water and in the morning succeeding that event it was found that a thin scum of oil floated upon the surface of the still water. This led to research, and to the discovery of rose-oil.

A Boon to Horse Owners.

Mr. Dixon of 5 Pitt Street, Adelaide, has furnished us with undoubted proof that he can remove the worm and bot from horses. Mr. Dixon states that he is so confident of effecting a cure in every instance that he only undertakes the work under the 'no cure no pay' system.



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Murderous Millinery.

Being passionately fond of studying the works of nature, and having heard that some of God's most beautiful creatures were threatened with extermination by being ruthlessly slaughtered to satisfy the cravings of fashion, I determined to investigate the matter to see if there was any truth in what I had heard. I am sorry to say that I have gathered together overwhelming proofs of a sad and pitiful story. Space will not allow of me giving but few of the facts that have come under my notice.

Feathers do not appear to have been much used, in Europe at least, for ornamental purposes until about the thirteenth century. But at the present time, I am sorry to say, not only feathers, but whole skins of all kinds of birds are used to tickle the fancy of that fickle goddess, 'Fashion.'

This terrible war against the feathered beauties of the earth is going on with greater activity than most people are aware. If it continues, it means absolute annihilation in a very few years.

The servants of fashion have more sins to answer for in their co-operation in this butchery of birds, than the most reckless of natural history collectors.

On account of the apathetic manner in which all measures for the protection of birds are received, the birds are gradually being exterminated, while those who would save them cry unheard in the wilderness. Woman walks the streets bedecked with the plumes of birds, which, living, are not only beautiful and interesting in themselves, but are of incalculable value to the State

as insect destroyers. But, because of vanity, the eyes are blinded.—Melbourne Age.

'The most strenuous efforts have been made within recent years to spread a knowledge of the consequences which follow from the encouragement of this traffic, created by the demand (for feathers). Unless progress towards this end is more rapid, the extermination of the hapless victims is inevitable. This in itself would be an end much to be deplored but the nameless suffering and pain which accompanies the extinction, makes the passing of our beautiful birds a sad story. Our birds are doomed because the women of civilised countries continue to have the same craving for feather ornaments characteristic of savage tribes. . . . One of the strangest anomalies of modern civilisation is the spectacle of modern woman, the refined and tender hearted, the merciful and compassionate, transformed into a creature heedlessly destructive to bird life, and in practice as bloodthirsty as the most sanguinary birds of prey.'—Knowledge.

Remember that the law says that a receiver of stolen property is as bad as he that stole. We can apply this to the feather business, for every woman who wears the plumes of birds is practically as bad as the murderer she employs to obtain them for her.

In a pamphlet from the Selbourne Society, an association formed for the noble purpose of preserving the works of nature from wanton destruction, we learn that between twenty and thirty millions of birds' skins are used yearly in England, France, and America for feminine ornamentation.

In Yorkshire (England) alone a single dealer is stated to have contracted to supply 10,000 tern skins to a London firm.

The smartest hats in Paris are trimmed with whole seagulls or parrots.

From a communication by Mr. A. J. North to the records of the Australian Museum, we learn that one man during a single season slaughtered no less than two hundred and fifty lyre birds. The birds of paradise, especially those found in New Guinea, are also eagerly sought after by plume hunters. We are told that the gorgeous colours and marvellous beauty of these birds baffle description. They are the monopoly of the chiefs who obtain them at a low rate from the mountaineers, and sell them to the traders. The skull and feet are usually removed, and the skin dried and wrapped in palm leaves. Wallace gives a vivid description of the time and manner in which these birds are taken:—

'At pairing time the birds meet in what the people call 'sacaleli' or dancing parties on widespreading forest trees with large outscattered leaves. A dozen or twenty fully plumed males then display their beauty in every variety of attitude and motion. The male birds raise their wings over the back, the long plumes raised up and expanded till they form two magnificent golden fans striped with deep red at the base and fading off into the pale brown tint of the finely divided and soft waving points. The whole bird is overshadowed by them, the crouching body, yellow head, and emerald-green throat forming but the foundation and setting of the golden glory which waves above. It is at this season (no doubt the most pleasant time in their lives) that these birds are captured. The bird catcher, having found a tree thus selected for a dancing party, builds a hut among the lower branches in which to conceal himself. As soon as the male birds have begun their graceful antics he shoots them one after another with blunt arrows for the purpose of stunning them and bringing them down to the ground without drawing blood, which would injure the plumes. So eager are these birds in their courtship that almost all the males are brought down before the danger is perceived.'

Some of the feathers worn by women are two feet in length; the choicest specimens are composed of innumerable breast feathers of humming birds, and cost as much as five guineas per pair. When we consider the size of these mites of the feathered tribe, some not much larger than a bee, we can form some idea of the great slaughter going on amongst these beautiful creatures. A newspaper declares that—

'At the National Horse Show at the Madison Square Gardens, New York, the whole of the middle class spectators was absorbed by the dresses and hats of the wealthy women present. The hats worn by the ladies were of enormous size. One wondered as one gazed at the illimitable expanse of brims and gorgeous forests of feathers how the wearers succeeded in alighting from their carriages and passing through the door.'

Some of my fair readers will no doubt think while reading these facts that it is only the rich who are responsible for all

the pain and misery and death in the bird family. But this is not so, for all who wear a feather of any sort, no matter whether it is the cheapest obtainable, know in their hearts that they would, if they could afford it, get the very best.

The most beautiful of feather ornaments are those known as the 'osprey plume.' The scientific journal, *Knowledge*, says, 'How this name came to be used is a mystery, for the feathers in question are not obtained from the osprey, which is a bird of prey, but from various species of herons, those known as egrets furnishing the most highly prized varieties. Quite a number of egrets have to be slaughtered to produce one pound of feathers, only a few drooping plumes from the back of the birds being taken. The egrets are wary birds and difficult to approach except when they are nesting or rearing their young, and it is at this time that the collector obtains his feathers.'

To give an idea of the appalling waste of life for which the trade in ospreys is responsible, we may remark that in London alone in one year the produce of 196,000 birds were sold, and as many were probably sold also in the markets of Paris and Berlin, since London has no longer the monopoly of the feather trade.

Unfortunately for the egrets these feathers are only in their prime during the breeding season, and by both sexes. As a consequence the slaughter of the adult birds at this time ensures the death by slow starvation of of thousands of young. The prosecution of such butchery is devilish, but what shall be said of those who, knowing this yet purchase these ghastly trophies.

An account published by W. E. Scott, an ornithologist of the highest standing, is positively sickening. In his investigations into the condition of some of the rookeries on the coast of the Gulf of Florida, he found that since his last visit six years previously, whole colonies of birds numbering in the palmy days many thousands of individuals, had been absolutely wiped out by plume hunters. These ghouls travelled in bands which sometimes numbered as many as sixty men. I will quote two or three passages from his paper as a sample. Visiting the breeding place of the reddish egret in Charlotte Harbour, he writes:—

'The trees were full of nests, some of which still contained eggs, and hundreds of broken eggs strewed the ground everywhere. . . . I found a huge pile of dead, half decayed birds lying on the ground which had apparently been killed some days before. All of these had the plumes taken with a patch of skin from the back. Some even had their wings cut off.

The extermination of another rookery shows the destruction that has been going on, and is still being committed to obtain bird plumes. One afternoon when Johnson (his informant) was absent from home, an old Frenchman came in with a boat and deliberately killed off

the old birds as they were feeding their young, obtaining about one hundred and eighty of them. The young—about three weeks old—to the number of 700 at least, and utterly unable to care for themselves in any way, were simply left to starve to death in the nests, or to be eaten by gracoons or buzzards.'

On enquiry being made by the New York Zoological Society from hunters and collectors, the answering correspondence contained the following facts:—

'After having stripped our Atlantic coast, the whole of Florida, and the Gulf Coast, of egrets, terns, and hundreds and thousands of other birds acceptable to milliners and hat trimmers, the plume hunters are now at work along the coast of Mexico, Central America, Lower California and upon the head waters of the Orinoco and the Amazon.'

After learning these terrible truths it is no exaggeration to say that unless the gentle sex becomes more gentle, the tender hearted becomes more tender, the one that should be merciful and compassionate more so, some of us may live long enough to see the day when our forests, as far as birds are concerned, will be as silent as the grave. They will not be enlivened by their beautiful plumes or melodious songs. Are you reader, helping to bring this state of things about? Perhaps through ignorance some are, but I trust after reading these facts they will tear loose from murderous fashion.

No wonder our birds are becoming scarce when we read from "Chambers' Encyclopedia" that "the value of ornamental feathers and bird skins imported into the United Kingdom exceeds in some years £2,000,000." Truly the relentless goddess of fashion has many followers. The blood of thousands upon thousands of innocent victims has to be spilt, thousands upon thousands of helpless bird babes are cruelly tortured by being slowly starved to death because the ones who loved them and cared for them have been butchered. All this has been done and is being done to satisfy the votaries who slavishly follow the dictates of this ruthless goddess.

We learn that the plume hunters are hard at work in sunny Australia. If this deadly work is allowed to continue, our most beautiful and attractive birds will soon be as extinct as the moa of New Zealand.

Investigation proves that feather trimmings are obtained by the most cruel and blood-thirsty means. The wearing of these adornments is an outward sign that we condone the slaughter of these innocents. We implore our lady readers to discard these unnecessary external adornments, and show by their actions that they are tender-hearted, compassionate, and full of sympathy for our beautiful friends, the birds.

C. HALLAM in the 'Signs of the Times.'

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The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry).

CONTAINS—

Illustrations—

View of Marechal Neil Roses growing on Tripod
Rose Beauty of Waltham
Rose Ulrich Brunner
Tacsonia growing in Jadoo, showing Root Action
Aurum Lily and Roman Hyacinth in Glass Pots, showing Root Growth
St. Vigeans, residence of Dr. Stirling
St. Vigeans, looking West
Teosinte
View of Mr. H. J. Weidenhofer's Residence

ANSWERS TO CORRESPONDENTS

EDITORIAL.

The Flower Garden—
Notes for the Month

Roses as Home Flowers—How to Grow Them

Jadoo
Improvement in Annuals

The Vegetable Garden—
Operations for the Month
Onion Mildew
Destructions of Slugs and Snails
Spinach and Onions

The Orchard—
The Value of Seaweed
Improvement of Orchard Soils
Interesting Notes
How to Pulp Fruit

Bee-Culture—
Advice to Beginners—The Apiary
Honey Paste for Labels

The Ladies' Page—
Marriage in Mexico

Hygiene of the Bedroom
News and Notes

The Young Folks—
A Few Seeds

WIT AND HUMOUR

The Farm—
The Conservation of Soil Moisture

The Dairy—
Bovine Tuberculosis
A Curious Cow
Miscellaneous Items

The Poultry Yard—
Diseases of Fowls
Do Hens Get Too Fat to Lay
Selecting Laying Stock
Preserving Eggs

PROTECTION OF BIRDS—
Several Aspects of the Protection of
Our Native Birds

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NOTICES.

ALL COMMUNICATIONS, literary or business, must be addressed to the Managing Editor "Australian Gardener," corner Wyatt and Pirie Streets, Adelaide, and not to any individual member of the staff.

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TO ADVERTISERS.—Particulars of rates will be supplied on application. Alterations of advertisements must be in our hands not later than the 15th of the month.

Answers to Correspondents.

'Snips.'—See answer to 'K.A.'

'X.Y.Z.'—You may plant strawberries during this month.

'Wager.'—The standard weight of Orpington hens is 7 to 8 lbs.; pullets ready to lay should be 5 to 6 lbs.

'I.S.' Green's Plains.—The variety of rape which gives most satisfaction for grazing purposes is the Dwarf Essex.

'Subscriber,' Walkerville. — Lemon trees succeed best in rich, light, loamy soil. They should be given a warm situation in the garden.

'Enthusiast.'—The large bees referred to are the drones. They should not be interfered with. The workers will destroy them when the proper time arrives.

'K.C.T.'—Thanks for the suggestion. We are always pleased to receive the opinions of our readers with regard to ourselves—whether it is nice or otherwise.

'K.A.' Woodville.—In our next issue we will give you all the information you ask on the Pruning of Fruit Trees (and in addition a lot you didn't ask), as in response to the queries of yourself and another correspondent we intend republishing from a back number of 'The Australian Gardener' an illustrated article dealing fully with the subject.

'Subscriber.'—The new grass may be accountable for the sickness and death of the turkeys. Those that are sick should have a teaspoonful of salad-oil, in which mix three drops of chlorodyne, once a day. Give when in pain a couple of drops of chlorodyne in warm, sweet milk every couple of hours, or sooner, if necessary. Into the drinking water of all your birds place sufficient sulphate of iron to impart to the water a very slight inky taste.

'H. Langdon,' Geelong. — *Schinus molle* is the botanical name of the small tree commonly known as the 'pepper tree.' It can hardly be classed amongst our valuable economic plants. Still, it is of some value. In Peru, its native country, a kind of wine is prepared from its fruits, while its roots are used medicinally. The juice of the plant is used for diseases of the eyes. The resin that exudes from the tree is used to astringe the gums. The small twigs serve for toothpicks. The seeds have, we believe, been ground into Pepper in Victoria, but it will never take the place of the pepper of commerce. We have not heard of ill-effects arising from cattle browsing on its foliage, but they would have to be very hard up for fodder before they would eat much of it. As you observe, it is a most valuable plant for growing almost anywhere, excepting quite close to the sea, in which position it does not thrive. It will grow in almost any kind of soil. Resists the heat well, but frosts quickly injures the young plants.

'T.B.K.,' Goodwood.—Gas-lime as taken fresh from the purifiers must not be used for manurial purposes without its undergoing some kind of preparation. We have known fruit trees seriously injured from the gas-lime which was placed on

pathways many feet away from the trees. Gas-lime is most valuable if used to destroy wire-worm and many other kinds of insect life, and also fungoid pests. For these purposes it should be used as fresh as possible. For manurial purposes gas-lime should be exposed to the air until the sulphides and sulphates it contains are converted into gypsum (sulphate of lime). This is usually done by carting it into heaps on the ground, and allowing it to remain for 12 months before use, or the process may be hastened by mixing the gas-lime with an equal bulk (or a greater bulk) of any refuse materials. Similarly, the same end may be secured by spreading the gas-lime on the surface of the land, and allowing it to remain there for a season. It is not considered a very valuable manure.

EDITORIAL.

After the splendid rains which opened the season the gardeners, fruitgrowers, and farmers are to be seen vigorously at work; some planting vegetables for the market, others ploughing, scarifying, and cleaning up the ground for young fruit trees; farmers are rolling and harrowing the young wheat fields, and building silos for the coming green-feed, and sheds for the wheat and straw.

† † †

In the Mount Lofty ranges the strawberry growers are preparing land for a very promising season. In the selection of land for this industry care must be taken that the ground is well drained, and that plenty of morning sun is available. The ground must be deeply dug before planting, as the operation cannot be performed after the plants are in. The surface should be very loose, as it is as well to turn in about half a ton of bone-super to the acre to give the young growths a good start. This need only be done once in every three years, as the manure lasts a long time. The plants should be placed in such a position as to let the Planet junior or hoe or other implement pass easily between them each

way. When taking runners off old established strawberries it is as well to place them in moist ground or bagging so as not to let them dry up. When planting see that the roots are well spread apart and the bottom of the hole and sides are loose so that the fibrous roots can have free room to expand. When manuring with stable or like manure care must be taken that it is not fresh and rank. The best method is to place all litter, vegetable substance and the like in a manure pit, so as to equalise the strength and also to prevent the moisture being evaporated by the sun. The manure is left in the pit for some time, and then used sparingly. This only applies to cases where strong growth is not required, but for vegetables such as cabbage, lettuce, celery, rhubarb, &c., it is not necessary.

† † †

In the vineyard the seccateurs are being used pruning and cleaning the vines for next season. The plough, the disc-harrows, and the scarifier are kept constantly at work loosening the surface soil and preparing land for the new vines.

† † †

The vegetable gardener is working 335 days in the year, excepting Sundays, when he only does what is necessary, and maybe those that are necessary would make a fairly good day's work for some men. But in the month of June he has a larger and fuller idea of profits in the future than usual, especially with regard to peas, cabbage, cauliflower, beans, onions, and odds and ends that shoot up into money in the early spring. Well drained land can now be prepared for all the comestibles mentioned, especially peas where new ground is available. In this case an eye should be had to follow the peas with potatoes if the ground is suitable. The author of the article on Operations in the Kitchen Garden gives instructions upon the establishment of an asparagus bed. Very few, if any, lines of vegetables are more profitable than asparagus when once the bed is in full productive condition. This article of diet requires more experience than most things to produce profitably,

but the application of a little common-sense and observation combined with the experience of somebody else who knows will do a great deal for the gardener who makes a bed for the first time. Seaweed is a valuable article to mix with stable manure for the asparagus bed.

† † †

During this month the old trees in the in the orchard do not require much attention, but the man who has an eye to meet next month's operations is constantly on the watch for the appearance of diseases in their incipient stages. Walking through his trees he is also noticing the work to be done and left undone with the pruning knife. His chief concern, however, is preparing for the young trees, and his choice of fruit is perhaps the greatest consideration. His mind is abroad on the big market of the world for profit, and consequently those varieties such as Jonathan, Rome Beauty, Cleopatra, Buncombe, Dunn's Seedling and Rokewood should claim his first choice.

† † †

This is the month for the Rose. A useful article appears upon 'Roses, and How to Grow Them.' When planting the grower will always remember that it is just as easy to grow a good rose as an indifferent one, and he will get heaps more satisfaction out of it. The nurseryman will be glad to see you. An hour's conversation with a reliable man who knows what he is talking about will pay handsomely, no matter how much money you may spend with him. This remark refers not only to Roses, but every other plant that will beautify the home. Try it.

† † †

The Poultry Yard and the Dairy are well provided in this issue with reliable information, and we cannot give better advice than to ask you to read the articles carefully.

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NOTICE TO FRUIT AND PLANT DEALERS.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.
2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.
3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.
4. No plants other than those growing in pots having soil attached to their roots will be admitted.
5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.
6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.
7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.
8. No plants or portions thereof will be admitted from any State or country where phylloxera exists unless accompanied by a declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in the exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phylloxera exists or has existed in the plantation from which the plants originated.
9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.
10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace.

L. O'LOUGHLIN, Minister of Agriculture.

Government Poultry Station.

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View of Marechal Neil Roses Growing on Tripod.

The Flower Garden.

Notes for the Month.

The work in this department is of a purely routine character, and there is little to add to the advice given in recent issues. Digging, trenching, shaping, remodelling, and reforming flower beds and borders, renewing and enriching the soil, and a general overhauling of every part of the garden is the principal work to be done.

Plants are for the most part in a dormant state, and are able to bear with removal, so that many reforms can be safely undertaken. Better positions can be allotted to subjects unsuitably placed or where better effects can be obtained

by the transference. Many large gardens manage to accumulate a lot of rubbishy trees and shrubs, which, of course, in the first instance, were intended to be ornamental, but through injudicious grouping and crowding become unsightly and diseased, and prejudice the healthy appearance of handsomer plants. These should be remorselessly banished. Crowding is a fatal mistake with ornamental trees and shrubs, especially where form and outline is their principal merit. Every subject should have the opportunity of developing its characteristic habit of growth without being forced into unnatural and fantastic shape by close contact with its neighbor. Scale and other pests are always rampant where

light and air and rain are excluded.

Paths that have been allowed to become weedy give the whole garden an untidy appearance. The use of a hoe on a gravel walk is a tedious process, and sometimes ineffective; and when once the surface is broken up, many rollings are necessary before it is again consolidated. When judiciously used, there is nothing so good as one of the 'weed exterminators' for gravel walks. It will not only kill the existing weeds, but will also poison the ground that noxious growths will not be seen again for some time. Great care must be exercised in using these 'weed exterminators,' for if the material be allowed to run on to or soak into the ground immediately adjoining where there is grass or any other vegetation, damage is bound to be done.

Rose pruning can commence this month where early growth and bloom are desired.

Many deciduous climbing plants and shrubs require their annual pruning or thinning at this season; a knowledge and observation of their growth is first necessary. Some of the Tecomas, T. Mackenni, for example, are benefitted by being barbered after flowering. While, on the other hand, subjects like Forsythias, Dentzias, Wiegalias, and Philadelphus flower on the wood of the preceding year's growth, and, therefore, require careful pruning. It chiefly consists in the removal of old, weak, and exhausted wood and a little thinning. Only in cases where plants are known to bear flowers on wood of the same season's growth can severe pruning be practised.

Above all, avoid trimming all shrubs after the same patterns. Each has a graceful outline more or less peculiar to itself, and this charm of individuality in the plant is rather to be encouraged than be destroyed.

Young seedlings of annual and perennial plants raised from seed sown in the autumn now require to be thinned; it should always be remembered that unless the plants have plenty of space, both flowers and foliage will be poor.



Rose Beauty of Waltham.

This old favorite is now in its forty-fifth year, and is still to be found amongst the prize-winners. It blossoms freely in the Spring, and is bright cherry red in color, passing to rosy-carminé, and the fragrance is very sweet. The petals are somewhat imbricated, the centres characteristically folded over each other. Beauty of Waltham is a first-rate kind to grow as a standard, either outdoors or as a pot plant for the rose-house; it is also good in bush form.

ROSES AS POPULAR HOME FLOWERS.

How They Are Grown.

[Extracts from a paper read by Mr. George D. Leedle, of Springfield, Ohio, before the American Rose Society in Convention at Buffalo, N.Y., March 17 to 19, 1909.]

In Springfield and its suburbs, the annual crops of small rose plants considerably exceeds 4,000,000, and in a season of liberal planting and favorable conditions for propagating, the aggregate would probably approximate 5,000,000. Quite a large percentage of this product

is consumed by the firms issuing mail order catalogues which go to the homes of the people, the remainder going to florists and nurserymen throughout the land for the various purposes of retailing in the market as pot plants, benching for cut blooms, bedding for ornamental pur-

poses and landscape gardening, and for lining out in the nursery row to become field-grown bushes.

— Method of Propagation. —

To accomplish this result, 400,000 or more young plants from 1½ to 2½ inch pots are planted on the benches in rows five to six inches apart during the period from about January to April, depending upon the ability of the sales department to make room by early shipments of stock. Pretty high temperatures are then maintained, the sunshine being largely depended upon for daytime heat, and from perhaps May to August, the wood is cut as it happens to come into just the proper state of ripeness according to the judgment of the grower in charge, the number of successive growths and cuts varying from one to three, according to the variety, season and demand for each particular sort. Occasionally, a belated lot of stock plants remain on the benches and propagation in the opposite season is resorted to, but this is only an emergency measure, the preference here being to adhere closely to Summer propagation.

The wood is made up into cuttings of from one to a half-dozen eyes, according to variety, rarity, condition, abundance, demand, season, and various other governing circumstances, usually in the Summer months but occasionally the work is prolonged into the Fall. The rooting is accomplished in hotbeds and requires from two to six or more weeks according to variety and weather conditions, the percentage of the 'strike' depending largely upon the skill and experience of the grower and his ability to master adverse weather and other conditions, but some percentage of loss is inevitable under the most favorable circumstances.

Potting of the rooted cuttings is the next step, these going into 1½ or 2 inch pots, then set down on the benches, watered and carefully shaded for some days until strong enough to endure the direct rays of the sun. During the Autumn sunshine, substantial roots and tops are made until the nutriment in the potful of soil is practically exhausted, then a shift is made to a 2 or 2½ inch pot

as the case may be, and occasionally to a 3 inch pot by special order. During the Winter, the rose houses are run at a quite low temperature, approaching the freezing point for some sorts. By these methods, the plants are given a rest during the Winter season and are permitted to take a fresh start at the approach of Spring.

— 'Summer Grown, Winter Rested.' —

Herein, as held by the rose growing fraternity in this particular locality, lies the value of the 'Summer grown, Winter rested' idea, namely, that Summer is the natural season for all things to rest, consequently, by following this method we are working in harmony with and not contrary to nature herself, and nature is proverbially kind to all who obey her laws.

— The Own Root System Exclusively Followed. —

The own root method is likewise believed to be in line with nature, being followed exclusively here, and is found in the long run and with the far greater majority of final purchasers to produce the most satisfactory results for all concerned. For a retail catalogue mail order floral concern, the perplexities which would arise from the sending out of grafted or budded rose plants by the million to amateurs all over the earth would be such as to make the life of the correspondent a burden.

As to the comparative advantages of grafted stock for certain cut flower sorts, I would not be qualified to speak. While quicker results may be obtained, the observation of the most experienced members of the Springfield Florists' Club, through many years, leads them to claim with confidence that, in the long run, all things considered, the own root rose plant will outstrip its grafted competitor in the production of cut flowers and is superior for all other purposes. They argue that being 'on its own legs,' it must necessarily run longer and faster than when tampered with by any artificial process.

— One Particular Line as a Specialty. —

It is obvious that the best results may be obtained by growing roses exclusively



Rose Ulrich Brunner.

The Ulrich Brunner is one of the most beautiful of Hybrid Perpetuals. It is absolutely the best light red rose grown. There may be roses more perfect in color, but there are none so good in growth, or more useful in the garden.

in houses containing nothing in the way of soft or miscellaneous stock such as may require different temperatures, and it is also generally conceded that the grower who is expected to know the habits of a hundred or two different sorts of roses on a commercial scale should have little else to occupy his constant attention. Hence the advantage of concentrating the undivided energies of the working organization to the growing of one particular line as a specialty.

— The Help One Another Practice. —

In our community, containing a number of concerns, all of which grow roses to a greater or less extent, the number of varieties being about 450, it will always be inevitable that at times there will be a short crop and a long

demand, or vice versa, as to some particular varieties, this being affected by the variations in amount planted, the favorableness of the season for propagating, and fluctuations in the demand from year to year. But, frequently, one grower is long on a variety of which another is short and, in a very commendable spirit, there is a disposition amongst the fraternity to be mutually accommodating in the interchange of stock which makes possible the more complete filling of orders and assists in a practically general clean up of stocks by or before the close of the season.

— Advantages of Placing Orders Early. —

The buyer of rose stocks wishing to secure the best of stock and certain varieties in particular should by all means

place his order with a dependable grower several months in advance of the time for shipping; in fact, early Winter is the best time, if not earlier, to engage roses for Spring delivery. The plants can then be selected, shifted, set aside in cool houses, and brought to the requisite size, strength and condition for delivery at any specified time. Postponement in placing an order is very frequently likely to cause disappointment by reason of certain desired varieties having been sold out and no further supply available until the following season. In ordering rose plants, it is advisable always to state for what particular purpose they are wanted, and briefly the kind of stock expected. The intelligent grower or order clerk will then have a clue to guide the selection of plants in just the condition to make them best adapted to the desired end.

— Substitution and Other Notes. —

The substitution of a different variety under the label of a variety definitely ordered is a practice not to be tolerated in this present day of floral enlightenment and it is entirely proper for the buyer to insist upon getting every item, true to label, the shipper to notify him to such effect if unable to supply the true variety. On orders requiring quick shipment it is well for the buyer to mention a second or third choice in place of varieties which he may not absolutely require, and this will facilitate the filling of many an order in the rush season.

The cheap collections advertised in the magazines and other publications, for premium purposes, are a prolific source of the substitution evil and by no means calculated to foster a true knowledge of roses on the part of the amateur. Many a woman or man will proudly exhibit a rose as being of such and such a variety when, in reality, it may be a radically different sort belonging to another class and possibly an entirely different color. But this appears to be practically irremediable so long as the consuming public retain the bargain counter craze and defer ordering until the rush is on in full blast. At such a time correspondence with a legion of customers would be an absolute impossibility.

Girl labor is gradually being introduced in the growing, labeling, and packing of roses and other plants at the various greenhouses, and by reason of their faithfulness, attentiveness, deftness of hand and aptness to absorb floral knowledge, they are conceded to be preferable to boys or young men for many classes of work.

— Which Makes Best Stock Plants. —

The growers of roses by the own root Summer propagation method are inclined to take issue with the cut flower houses following the method of propagating in the Winter from forced and practically exhausted stock. It is argued that it is against the laws of nature to propagate in the non growing season when such vegetation should naturally be taking a rest just the same as living beings require the rest of night after a day of activity. And it is claimed that stock forced for blooms for a year or two of constant strain must naturally be lacking in the vitality of blood necessary to make a vigorous and healthy offspring, and that in the long run the quite small plant propagated at the natural time from wood taken from a parent in the prime of its vigor will win out over its competitor propagated at an unnatural time from constantly forced and exhausted stock.

In other words, it is held that the florist about to plant for cut roses, instead of propagating from his own stock or purchasing, say, 3 inch pot roses from another cut flower house, had better buy and take a new start with fresh and vigorous and naturally grown plants from 2½ or 2 inch pots. To meet the demands of cut rose houses, local growers have frequently discussed the advisability of attempting to meet the demand for 3 in. stock for planting in May and June, but they are always up against the stubborn fact that the 3 in. pot occupies the same space as three 2 inch pots, and bench room for a large quantity of 3 inch seems never to be available, being always in demand either for the 2 or 2½ in. stock or for that which is on the benches for propagating purposes.

— No Trade Secrets at Springfield. —

Every department of every greenhouse

in this locality is open to the inspection of any and every person practically every day and night of the year, visitors invariably being cordially welcomed. Nevertheless, the success of the local plant growing industry has been built on years of long and varied experience and the art is not to be learnt in a day. Moreover, all natural requisites are at hand, among which are admirably adapted soils, just the right sand, suitable stable manure mingled with straw, a favorable climate, experienced help, central location for shipping, encouragement of one grower to another, and a multitude of other considerations too numerous to mention.

— Treatment of Problems. —

From start to finish, the battle against diseases, pests and possible disasters too numerous to mention is something terrifying, and the unceasing vigilance and extreme caution required might best be likened to raising a baby. Among other things, the stock plants are liable to be attacked by grub worms, fungus, green fly, scorching from sun heat by reason of slight delay in watering, while the advisability of disbudding or not, and the proper ripening of the wood prior to cutting, are problems requiring critical judgment and care; the cuttings in the hotbeds are constantly on a tremble between life and death, being subject to fungus and other attacks, and sensitive to momentary changes from cloud to sunshine, from sunshine to storm, and from moist to dry atmospheric conditions so that happy is the head grower after he lifts a choice lot of rooted cuttings showing a fair or extra good 'strike.' When finally potted, the young plants are still very tender and a little too much or too little sun or under or over watering may prove fatal, and even after having started fairly on the journey of life their enemies are legion; mildew, black spot, red spider, leaf rollers, and a host of other pests are seeking their lives by night and by day.

— 'Florists' Exchange. —

[Our readers must remember when dates are mentioned in this article that the American seasons are about opposite to ours. When we are having summer it is their winter, and vice versa.—Ed.]



TACSONIA GROWING IN 'JADOO,' SHOWING ROOT ACTION.

JADOO.

An Excellent Fertilizer.

This marvellous fertiliser was discovered by Col. C. Halford Thompson, R.A., of Eastcliff, Teignmouth, Devon, as the result of years of experiment in his own gardens. Its action in stimulating the growth of all plants was so surprising that he gave it the name of 'Jadoo,' a word formed from a Persian word meaning 'magic.'

The results of its use are so astonishing that something more than chemical analysis must be employed to explain it, and probably the reason is to be found in bacteriology, when an action, somewhat similar to that of leguminous plants, in storing up nitrogen in the soil, abstracted from the atmosphere by bacilli, will most likely be ascertained.

At first used to replace earth in the

potting of hot-house plants, its use has extended in a marvellous manner, and from being a light, clean, and convenient medium for window gardening, hanging baskets, and the hot-house cultivation of ferns and flowers in pots, it is destined to become universal as an agent in stimulating and fostering the growth of every description of plants, from the humble cabbage to the lordly oak.

Jadoo is not a manure. It is a special fertiliser for all kinds of plants, and can be used alone for potting and hot-house use. It is, then, a substitute for earth, a material in which not only one, nor twenty, but every variety of plant will grow more rapidly, produce finer blooms and foliage, remain in more uniform health, and require less care and attention than when planted in soil.

Experiments have been made with almost every known species of plant, tobacco, and vines, many vegetables, and some varieties of trees; and in every case the improvement in the condition of

these plants was so marked as to need no pointing out.

One remarkable feature of Jadoo Fibre lies in the fact that plants grown in it may be transplanted, with practically no danger of flagging.

— Directions for Use. —

When using Jadoo for plants in pots treat it in exactly the same manner as you would earth. The only thing to be taken care of is that the Jadoo is pressed tight round the plant. Water the plant well directly after potting. Don't over-water afterwards. In sowing seeds and planting cuttings in Jadoo, an even surface must be obtained by sifting the Jadoo, or by putting a little fine soil or sand on the top of it.

— Jadoo Liquid. —

Jadoo liquid is a highly concentrated solution of the elements which enter into Jadoo Fibre, the proportion of these elements being slightly changed. It is used diluted in water in the proportion of one part Jadoo liquid to 20 to 48 parts



ARUM LILY AND ROMAN HYACINTH IN GLASS POTS,
SHOWING ROOT GROWTH IN JADOO.

water, according to circumstances. Its composition never varies, thus avoiding all possibility of mistakes in its use. Jadoo liquid revives drooping plants, strengthens the weak, and nourishes the strong. Above all, it increases the size, causes greater profusion of bloom, and heightens the color of all flowers.

Improvement in Annuals.

Annual flowers have been enormously improved and increased in number of varieties and in variety of colours, and in many kinds the habit has been vastly im-

proved during the last 30 or 50 years, and more particularly during the last 10 to 20 years. They have been improved quite as much as roses, dahlias, and florists' flowers generally. In the year 1851, a leading seedsmen of London catalogued 760 varieties of flower seeds containing 2,920 varieties. Thirty years ago there were but five varieties of sweet peas listed, not one of which was of a blue shade; now there are probably over 200 varieties. There was then but one class as regards habit; now there are the very dwarf or cupid, the semi-tall or bush, the ordinary tall, and the early-flowering, sometimes called Christmas or Telemny.



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DIMOND BROS.,
150 Rundle Street.

Phalaris Commutata.

The Monarch of Grasses.

Thorough Frost-resisting; Stands Feeding or Cutting; Grows best in Winter. Attains a Height of 7 feet. Excellent for all Climates.

Extract from "The Australasian," May 18, 1907.

Phalaris commutata was introduced into Queensland in 1884 by Mr. Harding, the curator of the Toowoomba gardens, being one of many varieties of grasses obtained by him from America. What he says of it appears to have been borne out by all others who have tried the seed "The seeds" he said, "were sown in drills, and all germinated and made good growth until the first frosts, which killed all except one, Phalaris commutata. Requiring the ground space for other purposes, I removed this grass, and simply dumped into a corner of the nursery taking no particular care of it. Although the ground was very hard, it made tremendous growth in 1 year, germinated where it had fallen, and in twelve months grew into clumps 2ft across and 5ft in height, with nice, soft, succulent blades, and flowering stems. This has been cut two or three times in the year. The roots are fibrous, and the foliage very dense, and

a bright green, especially during the winter. Visitors from all parts of the Commonwealth, who were shown this grass, were surprised how it stood the drought. To graziers and dairymen I particularly recommend it, being particularly productive throughout the year, and is easily propagated. The seed is small and glossy. During the '93 drought some roots were in a bag for six weeks, and the only difference it made was that the foliage was slightly yellow, though the plants kept growing all the time. It seems to like all kinds of weather, and from the rapidity of its growth it excels all other grasses I have had anything to do with.

By its own self sowing, it has covered a large amount of space in the nursery."

How to Plant it.

Mr. Furphy, whose experience of the grass corresponds with that given by the Queensland botanist, states that his trials

have been made on poor, light soil, and he estimates that if properly attended to and given a light dressing of superphosphate, it would yield 8 tons of dried hay to the acre per annum. These are very big figures, and the grower who got half that return should be well satisfied that he has found a valuable new fodder plant. "I obtained," he said, "a few plants, and transplanted at the end of April, and whilst putting them out in drills 3ft apart and 2ft in the drills by the end of June they had made a growth of 2ft, sending on the shoots, until by the end of the season, as many as 167 seed-stems had been produced by one plant, the height being about an average of 7ft. It was a severe winter, but not a yellow leaf could be seen." He suggests that the seed should be sown in a bed like cabbage-seeds, and when the plants are sufficiently strong, should be transplanted 3ft apart each way.

Trial Packets of Seed 1s., 2s. per oz., post free. $\frac{1}{4}$ lb. 7s 6d, $\frac{1}{2}$ lb. 12s 6d, 1lb. and over 20s lb.

Trifolium Subterraneum.

Nitrogen gathering Annual Clover, of spreading habit, produces a great quantity of Fodder. Grows in Winter. Relished by all kinds of Stock. Very nutritious. Stands grazing well. Hay is of excellent quality. Wonderfully prolific. 4s. lb.

JADOO. New Potting Material in 1s. packets. Small bag, 4s.

Fruit Trees, Vines, etc.

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About Vegetables.

The Kitchen Garden.

Operations for the Month.

Probably the season will continue to be satisfactory during June, and the sowing and planting of all seasonable kinds should on no account be neglected.

Manure heaps should be turned over now and again. The heap to which all waste garden refuse has been wheeled should also be turned over and so assist early decomposition. Every particle of vegetable refuse and manure of all kinds should be saved; it should not be allowed to lie all over the ground to be dried up by wind or sun, or to have its best properties washed out by heavy rains. Some gardeners do not display much intelligence in their treatment of these things; they place more faith in the use of chemical manures, forgetting that there is every element of plant-food in good stable manure if properly conserved and used.

When laying out a new vegetable garden arrange so as to keep the permanent vegetables, the artichoke, the asparagus, and the rhubarb by themselves.

ARTICHOKE.

Plant out any seedlings large enough in rows about 6 feet apart.

CHINESE ARTICHOKE.

This vegetable was fully described in our May issue. If desired you may plant more tubers in rows 18 inches to 2 feet apart and 9 to 12 inches apart in the rows.

JERUSALEM ARTICHOKE.

Plant more tubers if required in rows 3 feet apart and 1 foot in the rows.

ASPARAGUS.

Up to a very late period it was considered that, to grow asparagus successfully, it was necessary to dig a deep pit and fill it full of manure, sowing the seed or planting the crowns on the surface. This idea has long since been exploded. To grow asparagus, no such pit is neces-

sary. If the bed is well dug or trenched and well manured, this is all that is needed.

From the time of sowing the seed, it takes three years to bring an asparagus bed into full bearing; therefore the best and quickest method of establishing a bed is to plant the crown, which may be obtained at a nurseryman's.

Trench the bed to a depth of 2 or more feet. If the subsoil be of a dense, stiff nature, break it well up with a pick, and incorporate with it yard manure, half-rotten straw, bones, &c. Replace the top soil, mixing it with old manure (horse or cow), adding a good sprinkling of coarse salt. Now leave the bed for a month or two, to allow the rain and moisture to act upon it. Before planting, the ground should have another good dressing of well-rotted manure, be trenched again 2 feet to 2 feet 6 inches deep, and be again well sprinkled with salt, leaving the surface level as the work proceeds.

The best time to plant asparagus is during the months of June, July and August. The growing season commences in October, and extends right into March or April.

Planting: Mark out the beds 4 feet wide, with paths 2 feet wide between them. Then draw out three rows, each 15 inches from the other, and put in the crowns, 15 inches apart, carefully spreading out the roots and leaving the crowns two inches below the surface. Fill in the earth as quickly as possible to avoid all unnecessary exposure. After planting, mulch the rows with stable manure to a depth of 6 or 9 inches, and water liberally until the plants are established. After the last week in October (in early districts, in September) the young shoots will begin to force their way through the soil. As soon as they are 2 or 3 inches above ground, they should be cut for use, taking care to always cut well down under the surface of the ground. The cutting must be done regularly during the season of six or eight weeks, and never allow, during that time, any shoots to develop. When the season is over, allow the plants to make their natural growth, taking care not to allow

any seed to ripen and drop. When the tops begin to turn yellow in the autumn, cut them down level with the ground, and again mulch with manure, salt, or kainit, forking the surface before applying it.

A bed of asparagus, attended to as here directed, will last for seven years and bear well during the spring and early summer. Two rows, 30 feet long, will suffice for an ordinary family.

Plants raised from seed will require four seasons before becoming productive, whilst those raised from crowns will afford a cutting in the second season—that is to say, in fifteen months.

BROAD BEANS.

Continue to sow largely in rows from 2 to three feet apart, according to the variety, for the dwarf-growing kinds may be sown closer together than the tall. The seed should be sown about four or five inches apart in the rows, and two inches deep.

RED, BEET (Long and Turnip).

A further sowing may be made if desired. Full particulars regarding the cultivation of Red Beet was given in our March issue.

SILVER BEET.

The leaves are cooked as spinach, and make a very palatable dish, especially when other vegetables are scarce. The mid-ribs and stalks are also used as a substitute for Sea Kale.

Sow a little seed in rows, and afterwards thin out the seedlings when they have attained a height of about 2 or 3 inches. It may, perhaps, be more convenient to sow in a seed-bed and afterwards transplant in much the same manner as is adopted for cabbages, &c. The soil for this plant should be heavily manured with well-rotted rich manure, for the leaves, and not the root, is the part used as a vegetable. The rows in the permanent bed should be about 2 feet apart, and the plants should stand about 2 feet distant from one another.

BRUSSELS SPROUTS.

Transplant to well dug up but not too heavily manured ground that has been prepared for them. The growth must not be forced, or else the young sprouts will

not form well. Plant in rows about two feet six inches apart. The plants to stand about two feet from each other in the rows.

CABBAGE.

Sow more seed, and plant out the young cabbages that may be available.

CARROT.

More seed may be sown if needed. Sow in rows two feet apart; make several successive thinnings, until the young plants stand from 4 to 7 inches apart, according to the variety. Before sowing the soil should be deeply pulverised, and no manure should be used but which is thoroughly decomposed.

CAULIFLOWER.

Transplant the seedlings large enough in good rich soil which has been trenched and well manured, in rows of from 2 to 2½ feet each way.

CRESS and MUSTARD.

Sow for succession about once a fortnight in light rich soil in drills half an inch deep and 8 inches apart, and sow thickly.

HERBS.

The various kinds may still be lifted, divided, and replanted. Every garden, however small, should contain a few roots of thyme, sage, marjoram, savoury, mint, and parsley. Parsley must be raised from seed, and, although the plants when quite young will transplant, it is better to sow the seeds where the plants are wanted. When of a dwarf and well-curved kind, parsley makes a capital edging in the vegetable garden. The seed takes a long time to germinate; by soaking it in tepid water for 24 hours, the process is accelerated. Sage grows freely from cuttings put in at this period, for the old plants may be divided, and seeds germinate rapidly. Of thyme, there are several kinds, all of which may be used in the kitchen; the silver variegated and the golden make nice garden edgings. Thyme is readily propagated by division; it is also increased by seeds and cuttings. Marjoram consists of two kinds—the sweet and the knotted. The former is the better sort, but is not so strong a grower or as hardy as the other; both are increased by division and seed.

Savoury may be treated in the same way as marjoram and thyme. There are two common kinds of mint—the spear or pea mint and peppermint. Both kinds prefer a dampish place, and, as the plants spread rapidly, they should be planted in some out-of-the-way place, where their roots would not interfere with those of other plants. The peppermint may be dispensed with; but the spearmint is most useful; both kinds are easily increased by bits of roots or cuttings.

Besides those referred to there are many other kinds of culinary herbs as well as a variety of medicinal ones. Tarragon is used in salads to correct the coldness of the other herbs; and its leaves are excellent when pickled. To produce this herb to perfection it should be planted in poor, dry soil. By cutting the stems down occasionally new shoots are formed. Some of the leaves should be gathered in the summer and dried for use in the winter. Those who desire a collection of herbs should plant fennel, rampion, rue, hyssop, pot marigold, wormwood, anise, rosemary, basil, borage, caraway, dill, horehound, balm, chervil, purslane, &c.

LEEK.

Seed may be sown largely, and any plants from previous sowings that are large enough, say six inches high, may be planted out. Directions were given in our April issue.

LETTUCE.

If plants are available, they may be planted out largely. Sow a little more in a bed or box, and when three or four inches high, plant out in good rich soil, which has been trenched and well manured, in rows a foot apart each way.

ONION.

Sow in shallow drills about a foot apart and do not cover deeply. When large enough transplant in rows a foot apart and about six inches apart in the rows, and apply liquid manure occasionally.

POTATO ONION.

Plant the bulbs very shallow in deep, rich, well-prepared soil, in rows 15 inches apart and 10 inches from each other in the rows.

TREE ONION.

The bulbs should be planted in deep rich soil, in rows 12 inches apart and 6 inches from each other in the rows. They must not be covered much.

PARSNIP.

Sow in drills 18 inches apart, and when the plants are about 2 inches high, thin out to 6 inches apart.

PEAS.

Sow in rows 2 feet apart for the dwarf varieties, and from 4 to 5 feet for the tall varieties.

RADISH.

Sow either in drills or broadcast, and when the plants are fit thin out to about two inches apart.

RHUBARB.

Plant seedlings in rows 3 feet apart and 2 feet in the rows. The crown should be 2 inches below the surface.

SEA KALE.

Sow the seed in rich soil, in drills a foot apart, and thin out to 8 inches in the rows. If you have plants available transplant in rows 3 feet apart and 18 inches in the rows, covering the crowns 2 inches.

SHALLOTS.

Make a further sowing if required. See our April issue for directions as to cultivation.

PRICKLY SPINACH.

Of the two varieties of spinach (the round and the prickly) grown for market, the prickly is the more hardy. The ground for spinach must be worked deep, and, as quick growth is necessary, the soil cannot be too rich. Sow the seeds in rows 1 foot apart. When the young plants have made four or six leaves, thin them out to from 9 to 12 inches apart. While growing, plenty of water is required to bring the crop to perfection, and the ground must be kept free from weeds. The leaves will be ready in from 80 to 100 days from sowing.

TURNIP.

Sow more seed for succession.

Set the seed in light, rich soil, in shallow drills 15 inches apart; sow the seed thinly, and when they come up thin out to 8 to 10 inches in the rows.

Onion Mildew.

This troublesome parasite, which is to be found in all countries where the onion is grown, is caused by a fungus, a near relation of the dreaded potato-blight. All members of the onion family are subject to attack, the leaves being the organs which are directly affected. The first signs of disease consist of the development of yellowish patches on the leaves. These areas soon become covered with a delicate coating of mould, much as if they had been powdered with flour. This coating soon changes to a grey or light-brown colour. Meanwhile the disease increases rapidly until the whole leaf is affected and withers away. The appearance of 'thick neck' is especially characteristic of this disease. The bulbs are not directly attacked, but if the disease appears early in the year they remain extremely small, and do not mature properly, so that the crop is practically ruined.

There are two methods of reproduction—first, by summer spores, which serve to disseminate the disease from crop to crop during the growing season; and, secondly, by rounded thick-coated bodies, called resting spores, which are produced in the decaying tissues of the leaves, and remain dormant throughout the winter. In the spring they germinate and inoculate the young crop.

— Treatment. —

The crop should be thoroughly sprayed with Bordeaux mixture, using the 4-4-40 formula as a preventive. If this has been neglected, then spray as soon as the disease is detected. This spraying should be repeated whenever the disease appears to be gaining ground. The use of potassium-sulphite—1 oz. to 2 gallons of water for small plots, as it is more easily prepared than Bordeaux mixture, although not quite so reliable—is recommended.

— Bordeaux Mixture. —

4 lb. sulphate of copper; 4 lb. fresh lime (if fresh lime is not obtainable use 5 lb. of ordinary washing soda instead of 4 lb. of lime); 40 gallons of water.

— 'New Zealand Farmer.'

Destruction of Slugs and Snails.

We have been asked for a remedy against slugs (*Vaginula*) which are proving such a pest to gardeners just now.

The following, taken from Circular 53 of the 'Comision de Parasitologia Agricola,' Mexico, indicates some of the methods that have been found useful in dealing with slugs and snails, which are sometimes a serious pest in that country:—

The collection of snails by hand has been tried and found successful. The best times for the practice of this method are at the beginning and end of the rainy season.

Pieces of board smeared with fat on the underside are laid down in infested places, with room beneath for the snails to collect. Cabbage leaves with rancid butter on one side, melon rinds, and the leaves of the common acacia are useful in attracting the snails.

For trapping slugs a very useful trap may be made of earthen flowerpots provided with a cover and having a row of holes around the middle. These pots are sunk into the ground so that the holes come about at the surface. The inside of the pot is smeared with beer, a small amount of which is put into a dish at bottom.

Another useful trap is made of a cone of galvanised iron, with many perforations, which is sunk into the ground, leaving only the top row of holes above the surface. Pieces of potato, carrot, and apple have been found attractive baits in this trap.

When slugs and snails have been trapped, they may be killed by being left for five hours in a 5 per cent solution of copper sulphate in water, or a 2 per cent. solution of lime in water.

These pests may be kept away from a nursery or garden plot by means of a rope of twisted grass or fibre soaked in a 10 per cent. solution of copper sulphate and stretched around the border. Bands of cloth soaked in this solution and fastened around the trunks of trees may

be used to prevent the ascent of slugs and snails, while a solution of iron sulphate, 25 per cent. to 50 per cent., applied in a ring 4 inches wide around the trunk of the tree, is said to stop the passage of these small animals. They may be killed in weeds, hedges, &c., by spraying with a 1 per cent. to 4 per cent. solution of copper sulphate, or a 1 per cent solution of common salt.

Snails and slugs are eaten by geese, and the species of one genus of carnivorous snails (*Glandina*) are known to attack those that feed on plants.

Spinach and Onions.

Prominent specialists claim that spinach is the most precious of vegetables, on account of its medicinal and strengthening properties. The emollient and laxative virtues of spinach, owing probably to the salts of potash it contains, have long been known. It is excellent for the liver, and, as a consequence, freshens the complexion. Some vegetables contain a relatively large dose of iron. According to Dr. Boussingault the proportion is 0.00074 of iron in 100 parts of French beans, 0.0083 in 100 parts of lentils, and spinach very much more. The chemist Bunge has proved that spinach and yolk of egg are proportionately richer in digestible and assimilable iron than many ferruginous remedies. Its great value and growing importance is shown in the fact that spinach is already an active ingredient in several new and valuable tonics. Onions are almost the best nervine known. They are most useful in cases of nervous prostration, and will greatly assist in giving tone to the system. They are useful in all cases of coughs, colds, influenza, and scurvy and kindred complaints. Eaten every other day they soon have a whitening and clearing effect on the complexion.

— 'Faulding's Journal.'

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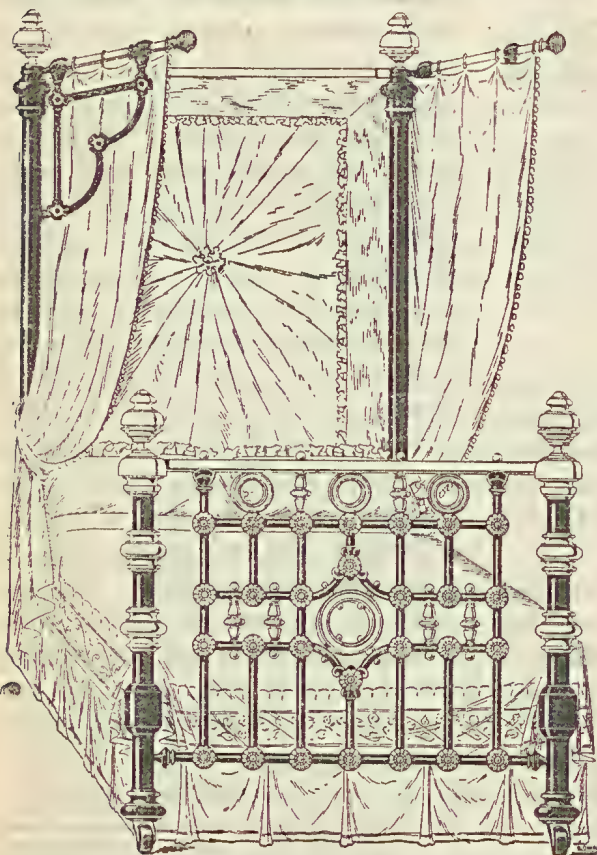


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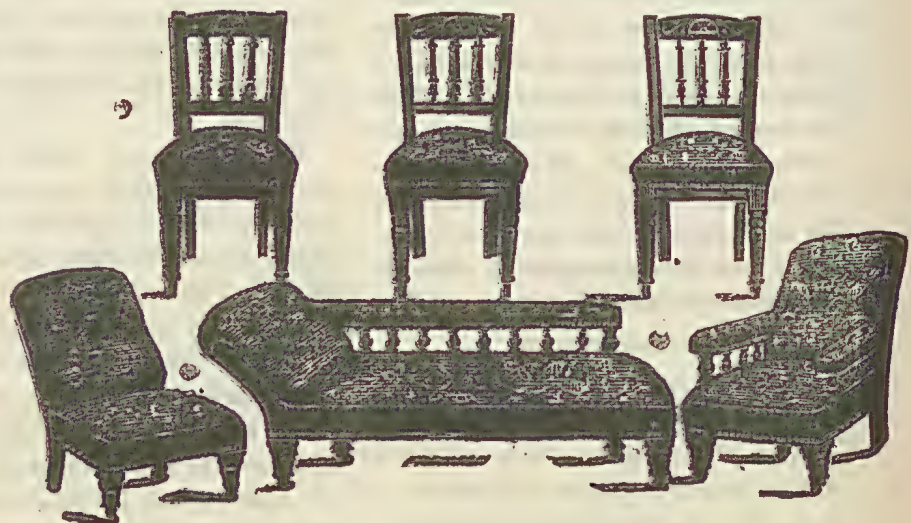
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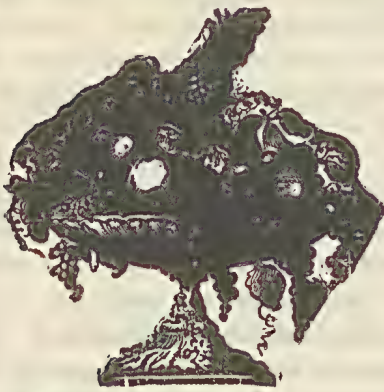
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The Orchard.

The Value of Seaweed.

Seaweed is often looked upon as a waste product of our seashores, but instead of being of little or no value, it is esteemed by those who have used it as a most valuable manure, either when used by itself or mixed with stable or farmyard stuff. All gardeners, are aware of the utility of seaweed for dressing beds of asparagus, sea-kale, globe artichoke, and some other vegetable crops, but they do not seem to know that moderately used it has a most beneficial effect upon fruit trees, especially apples and pears, also upon grape vines.

It is true that some market gardeners residing near our seashores go to the trouble of gathering and carting on to their land small quantities of this material but an immense amount of it is allowed to be lost by being washed back again into the sea, to be covered up with sand, or allowed to rot on the beach and become offensive in many ways. In dry seasons it makes a really excellent mulching material perhaps better even than stable manure, and certainly better than many other things which are used. It is recorded that some land which had been reclaimed from the sea had been converted into a garden which grew excellent vegetables, flowers, and fruits. There was a great depth of sandy soil, and this was composed to a great extent of sand and decayed seaweed. It appears to be of more value in light than in heavy soils.

Apart from any manurial properties

contained in seaweed, it is, like salt, moisture-holding, as well as feeding, the value and importance of which should not be ignored by those whose fruit trees are growing in very porous soils and where the rainfall is light. Fresh seaweed should not be buried near to the roots of established trees, neither should it be incorporated with the soil in forming a new fruit garden, but frequent mulchings of the surface ground, piecemeal, are a safe means of stimulating growth and sustaining the trees under the trying influence of a long drought. By this means it would gradually find its way into the lower ground, and undoubtedly improve its staple.

In many parts of Great Britain seaweed is assessed at its proper value. One illustration may be given. The gardens at Arundal Castle are widely celebrated for their extent, and the fine order in which they are kept. For a series of years heavy mulchings of stable litter were annually applied to the fruit trees, but it was found that the manure formed fine harbours for woodlice, earwigs, beetles, and weevils, as well as for sparrows and other birds; the fruits suffered in consequence, and the finest specimens formed the feeding ground at night of the numerous insect depredators. It occurred to the head gardener to use for a mulch seaweed. This was done, and now the fruit is large, bright, without a speck, and uninjured by any of the above-named pests. Occasional dressings to vines of seaweed are also recommended.

It has been stated that potatoes which have been manured with seaweed will stand a considerable amount of frost, while others, to which this had not been applied, were blackened and severely injured. It would seem that the soil for the time being had acquired a property equivalent to a certain degree of atmospheric temperature, or, rather, that the nourishment absorbed by the plants under such circumstances, had enabled them to resist a degree of cold that would otherwise have destroyed them.

The fertility of the Isle of Jersey and the ability of the islanders to grow so much produce on a small area of ground is partly due to the large quantities of

seaweed used there. Many kinds of fuci and algae are thrown up on her coast, and there is, no doubt, a difference in the value of the numerous species, but there is no picking and choosing when the 'wrack' harvest begins. As much as 10/ per ton is often paid there for seaweed.

Seaweed varies considerably, some being far too coarse and heavy for the purposes mentioned, unless it has first had time for its partial decomposition. Preference is given to that of a finer and lighter character, which, collected, generally contains a fair amount of sand, making it more suitable in every way for use in the garden, whether it be for asparagus, fruit-trees, or even as a plunging material for pot-plants during the summer months. We have no statistics available respecting the comparative value of seaweed with farm-yard or artificial manures, and, as before stated, the value of the various kinds of seaweed must differ a little.

When burnt, and the ashes applied to the ground, it is good for all kinds of cereals. Seaweed is sometimes suffered to ferment before it is used, but this process is thought by some unnecessary, for there is no fibrous matter rendered soluble in the process, and a part of the manure is lost. A common plan is to mix it with stable manure, and let it lie for a while before using. The best results are generally obtained when used as fresh as it can be got. Some seaweed, which had been fermented, so as to have lost about half its weight, afforded less than one-twelfth of mucilaginous matter, from which it may be fairly concluded that some of this substance is lost in fermentation. The benefits of seaweed do not extend beyond one, or, at the most two, years.

In a bulletin of the United States Department of Agriculture, it is stated that in New England some of the best farms are largely maintained by the use of seaweed. It is partially dried on the beach before being carted on to the land, so as to reduce the weight, and consequent cost of conveyance, but it is not considered advisable to allow the weed to become quite dry, as it does not then readily decompose in the soil. Nor should

it be allowed to ferment, or its manurial properties will be weakened. It is applied at the rate of from 20 to 30 tons to the acre; a ton containing about 80 per cent. of water, about 0.4 per cent. nitrogen, 0.7 per cent. potash, and 0.1 per cent. of phosphoric acid. Seaweed is therefore what is known as a potassic manure. It also supplies the soil with a large amount of humus, thus improving its physical properties. It is not, however, so well balanced as ordinary barnyard manure, and to get the best results it should be used in combination with a bone or phosphate manure; it has the great advantage in its freedom from weed, seeds, insects, and the germs of plant diseases. It is most valuable for potatoes, and is said to decrease scab in the tubers. There can be no doubt, therefore, that seaweed has a value as a garden manure, especially on sandy soils, and for leguminous crops. It should be wheeled on to the ground in the autumn, and dug in early. If mixed with barnyard manure it may be allowed to stay in a heap until the whole is rotten and fit for application in the spring. Generally, however, those who use it prefer to apply it in the autumn, so that it may have time to decay before the crops are planted in the spring.

—'Australasian.'

Improvement of Orchard Soils.

Where the soil of the orchard is harsh and parched, its condition and moisture-retaining properties can be improved vastly by means of green manuring. Trials at the various Departmental orchards have demonstrated that in all but citrus orchards, crops of the pea family, sown in autumn and turned under just when they attain the blossoming stage in early spring are productive of excellent results. Slapdash methods cannot be adopted, however, in connection with the sowing of field peas or vetches in run-out soils. For one thing the seed is pretty expensive, and unless the ground is prepared carefully and a little stimulant in the way of a dusting with bone-meal or superphosphate is added, there will not be much

green stuff to turn under. But if the ground is well prepared, and it is borne in mind that whatever slowly-soluble phosphatic manure is put in at sowing time will be merely converted for the requirements of the fruit-trees, satisfactory results may follow.

Several seasons ago comparative experiments were carried out at the different orchards, and the balance of opinion was in favour of vetches or tares, which not only produced the most luxuriant mass of easily turned-under green stuff, but possessed the deepest root-system with the peculiar function of nitrogen-gathering exerted to a great degree.

The quantity of seed per acre, where trees are planted 20 feet by 20 feet, is about 2 bushels, but the quantity of fertiliser added, must be regulated by the condition of the soil. Under fair conditions $\frac{3}{4}$ to 1 cwt. of superphosphate of bone-meal per acre should suffice, but in some cases it would, undoubtedly, pay to add twice that quantity of bone-dust in order to enliven the soil.

—'Agricultural Gazette of N.S.W.'

Interesting Orchard Notes.

By the time the Mildura lemons are ready to pick it is estimated that this State will have dispatched to Victoria quite 4,000 cases of the fruit.

As soon as any part of the orchard is is pruned, gather up the prunings, and work the land as a thorough winter weathering of the soil is very beneficial in its effects.

Lemon growers this year hope to profit considerably through the heavy requirements of Victoria. Already they are experiencing the benefit due to the fact that the South Australian fruit ripens about a month earlier than that of Victoria. Mildura lemons are not yet quite ready for market, but in the meantime the heavy demand is being met by the South Australian product.

Tropical fruits are an acquired taste and retailers say they cannot undertake

the risk of buying and waiting for the acquirement to take place. Tomatoes are an acquired taste, and many years ago a man who induced a friend to eat one was chased by the latter, armed with a shovel, for two days afterwards; the friend thought an attempt had been made to poison him. Tomatoes are now grown, sold, and eaten by the ton; and perhaps it would happen the same way if some tropical dainties were introduced. When bananas first went into England in useful quantities, about thirty years ago, sales were very tardy; since then fortunes have been made by importing the fruit.

* * * * *

'There are several kinds of Queensland tropical fruits we could import,' says a Western Market trader, 'if the public taste for them were to develop. Amongst the best kinds are paw-paw, genadillo, custard apple, mango, guava, and other fruits. Some of these would probably grow here. 'Last year,' he continued, 'an importer brought over 100 cases of mangoes. He sold a few at 4/6 per case; some went for 2/6, and the rest were given to the man who carts away the refuse. The demand was nil. Shopkeepers will not push anything new, and the public will not buy a thing unless it is brought under notice. It does not pay to import ahead of the public taste.'

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How to Pulp Fruit.

The principle under which fruit is preserved in the form of what is termed 'pulp' is the same as that of canning or bottling. The process, however, varies slightly to meet the requirements of a separate branch of trade.

Canned fruit is preserved in such a form as to be available for every table.

Fruit-pulp supplies a demand among jam manufacturers and confectioners for fruits, large and small, in a more concentrated form than the canned article at seasons of the year when they are not to be procured fresh. The demand for fruit-pulp in the Home markets has hitherto been met mainly from the south of Europe. To compete successfully in an established market it will be essentially necessary to adopt the size of tin, and style of package, which has already found favor with the buyers.

— Size of Tins and Studs for Large Fruits. —

Round tins are used, 10 in. deep, 5½ in. to 6 in. in diameter, to hold 10 lb. of fruit when filled. Studs of tins should

be 3 in. to 3½ in. wide. A large stud is needful to avoid as much as possible crushing the fruit in filling the tins. The package will contain ten tins to the case.

— Process for Large Fruits. —

Large stone fruits, such as apricots, are halved, and the stones removed. Apples and pears will be halved or quartered, peeled, and cored (these for home or colonial requirements). The tins are filled with fruit, tightly packed, to which little or no water is added (in this the process differs from that of canning), placed in a shallow boiler, the water in the boiler brought up to and kept at boiling point until the whole of the contents of the tins has reached that degree of heat. It will then be found that the fruit has settled considerably, necessitating the refilling of each tin with the cooked fruit. The tins having been refilled, the studs are soldered on with the vent holes open, again placed in the boiler, and the contents a second time brought up to boiling point. The vent holes are then stopped, and the tins cooled as quickly as possible. The cooling

will be hastened by leaving spaces between the rows of tins and placing battens between the different layers.

— Size of Tins and Studs for Small Fruits. —

Tins of 4 gallon capacity, similar to those used for kerosene, but of heavier material, are used, with studs 2 in. in diameter.

— Process for Small Fruits. —

Small fruits, such as raspberries, are preserved in quantity, the fruit in this case being cooked in the steam jacket pans used in jam factories, or, where the preserving is done at or near the orchard, in an ordinary copper boiler; constant stirring being necessary to prevent scorching, which would affect the flavour and market value of the finished article. The cooked fruit should be rapidly ladled from the boiler into the tins, a large-sized funnel being used to expediate the work, in order that there may be no unnecessary delay, with consequent loss of heat, before the stud is soldered on and the vent hole closed.

— Theory of the Process. —

The necessity for exercising care in



St. Vigeans.—View from Terrace, looking West.

each step of the process will, perhaps, be better understood when the theory is fully comprehended. All fruits having attained a certain degree of ripeness ferment more or less readily. In the preparation of fruit pulp, as in canning, a sufficient degree of heat is employed to destroy all germs of fermentation. While that degree of heat (in no instance should it be allowed to fall below 180 deg. Fahr) is still maintained the tins are soldered, so that the atmospheric air is entirely excluded, and with the air the germs of fermentation. It will be evident that there must be no time lost before hermetically sealing the tins when once the fruit has been removed from the fire-heat.

— Necessity for Careful Testing of Tins. —

It is essential that each tin should be carefully tested before being finally packed. For this reason it is advisable to defer packing for shipment for ten days or a fortnight after preparation.

During this period, if the conditions are favorable, as is usually the case during the fruit season, fermentation in the defective tins will have commenced. Tins that have been hermetically sealed, on cooling, show contraction. The reason of this is that the contents expand under the heat employed, and again contract in cooling, leaving a vacuum which the atmospheric air endeavors to fill, compressing the tins in its efforts to do so. Those that have a hole, however small, will keep their usual shape, the air entering as the contents of the tin contract in cooling. When fermentation has commenced this will frequently bulge out, owing to the expansion of the contents, caused by the gas formed in fermentation. To make quite sure tins may be plunged upside down in boiling water, when the expansion under heat will cause bubbles to rise from each defective tin, and the weak spot on each can be marked and resoldered. Fruit in defective tins will require to be treated a

second time, as at first, but if fermentation has commenced the flavor will have so deteriorated that it should not be graded first class, the current market value being lessened in proportion to the loss of quality, probably one-half.

—‘Farm.’

The wraps on all budded nursery stock may be removed any time now.

.....

In choosing varieties of fruit to plant ascertain the varieties of fruits which find most favor in the markets, then select such kinds as will thrive best in your soil and climate. After planting, work, manure, and prune these in the most up-to-date manner, and when they come into bearing, grade the fruit carefully, pack it neatly—in a word, do every part of the work thoroughly, and you will not be disappointed when you make up your yearly balance.

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BEE = CULTURE.

Advice to Beginners.

By Isaac Hopkins, Apiarian, in Bulletin
18 of N.Z. Department of Agriculture.

(Continued from last Issue.)

IV. THE APIARY.

—Water.—

Bees require a great deal of water during the breeding season, therefore a small running stream near at hand is a boon; otherwise water can be provided in troughs, with floats, or filled with pebbles, placed in some shady spot near at hand.

—Area of ground for a Bee farm.—

Half an acre will afford ample space for a good-sized apiary and the necessary buildings; but if renting a site, as many do, it would be as well to rent an acre, so as not to be cramped for room in case of extending operations. A good substantial cattle-proof fence around the site is absolutely necessary.

—Laying out an Apiary.—

The site for the hives should be as level as possible, for convenience of taking appliances and combs to and fro. It should be laid down in grass, and be kept closely cut, especially near the hives. The best arrangement of the hives in every respect is in straight rows, with entrances facing the north or north-east—never face them westward if it can possibly be avoided. Occasionally there is a departure from this form of arrangement, some preferring to place their hives in clusters of three or more, with their entrances in different directions. I certainly do not approve of the latter method, as it appears to me to be very inconvenient in several ways without any compensating advantages. A glance at the extensive American apiaries illustrated in the 'A B C of Bee-culture' should convince one that the straight-row system is adopted by the majority of bee-farmers in that country.

A serious mistake is often made in placing hives too close together, fighting and robbing among the bees is much more likely to take place under such conditions

than when the hives are a suitable distance apart. They should be at least 6 ft. apart in the rows, and the rows 8 ft. apart. In the Ruakura State Apiary I have placed them 8 ft. from centre to centre in the rows, and the rows 10 ft. from centre to centre, with the hives in each row opposite the spaces in the rows in front and behind. There is ample space to work at any hive without standing in the line of flight to or from any other hive, and a lawn-mower can be used anywhere about the apiary, so that I recommend those distances between the hives when laying out an apiary.

—Shade.—

Many amateur beekeepers imagine that hives containing bees need shading, and forthwith place them under trees in dense shade. No greater mistake could be made in bee-culture. Bees love sunshine, and, if in the hives recommended, they should be in the open where they can get all the benefit of the sun, summer and winter. Though the shade of fruit trees—being deciduous—might not be objectionable, there is no need of it. The hives, if painted white, or a light colour, and the ventilation from the entrances properly attended to, are better out free from all obstruction to rapid work. After bees have been located in dense shade for a while they become very vicious and difficult to handle, and in continuous wet weather, and also during the winter, the insides of the hives become damp, which is injurious to bees. Bees themselves indicate when the ventilation is insufficient. When they are seen near the entrance with their heads down and their wings vibrating—understood as 'fanning'—they need more ventilation, and it should be given by enlarging the entrances.

—Flat Covers.—

I consider these an abomination, and they should not be tolerated in the apiary. They twist and warp, require 'shade boards' over them, and lumps of rock to keep the shade-boards from blowing off, and altogether form the most unsightly and inconvenient fit-out, as covers it is possible to imagine. An apiary that otherwise would have a picturesque appearance is transformed into an ugly bee-yard by such covers. Independent of their appearance, flat covers prevent such a free circulation of air as is obtained under the gable covers. There is a dead air space

between the gable cover and the bees, which tends to keep the hive cool, and no board or other shade is needed. Whether the flat covers are adopted on economical grounds I do not know, but I am surprised at any one using them, for if the gable covers cost four times as much I would have them in preference to the flat ones.

—Apiary Buildings.—

An extracting-house, honey-room, and workshop or store-room are absolutely needed in a properly furnished apiary. They can be all under one roof or in one building, and need not be very extensive but should provide ample room for doing all the work of extracting, tinning the honey, &c., and storing spare hives and combs during the winter. I have been surprised when on my rounds to see the cramped, makeshift places at most of the apiaries doing duty for extracting-house, store-room &c. I have only seen one or two apiaries out of all I have visited that had anything approaching a decent extracting-house. If carrying on any other business than bee-farming, I expect the selfsame people would think it necessary to provide themselves with a suitable building, but they do not seem to realise the inconvenience and loss they sustain through not having suitable accommodation for carrying on their work. However, in time I hope to convince all bee-farmers in this colony that it will pay them to carry out their work on proper lines.

(To be continued.)

Honey Paste for Labels.

It frequently happens that small labels on tins fail to adhere when dry. To completely overcome the difficulty, an American bee-keeper, who tried all kinds of paste for sticking labels on tin cans and buckets, conceived the idea of mixing honey with the paste, and this proved a perfect success, the labels sticking tightly to the cans after drying. To make the paste, mix dextrine and vinegar to the consistency to suit, then add about 2 ozs. of honey to the pint of paste. Don't make the mistake of putting too much honey in, or the labels will have a greasy appearance, and will not dry right. It requires more honey in a dry atmosphere than in a wet one. Such paste will keep in either a warm or cold climate. Other pastes might do if a label is used which will go clear around the tin and overlap a little, but they will not hold a small label.

—'Queensland Agricultural Journal'.

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The Ladies' Page

Marriage in Mexico.

In the main, Mexican marriages are much more matter of fact than sentiment. On the man's side, the affair is one which must have the assent of all his family, should he belong to the superior social class, and monetary or material considerations enter largely into the contract.

Many instances might be mentioned of two young persons who have never met each other, and into whose minds the idea of matrimony has not—as regards the parties most concerned—entered, becoming man and wife in Mexico in accordance with the whim of their parents.

—Marriages of Convenience.—

It may be that the family, of the bridegroom looks upon his union—for better or for worse—with a certain young lady who may happen to be the daughter of a magnate as the means of avoiding bankruptcy; it may be that the father of the bride considers her alliance with the son of a politician as an adroit measure in preventing the downfall of the head of the house; or in point of trivial circumstances, it may be that a marriage is simply, 'engineered' with the object of reducing the yearly expenditure in the domestic establishment of the father of the bridegroom or that of the bride.

The motives given, and those never given, for the prearrangement of such alliances vary according to conditions, and are always in relation to the position occupied by the two families.

—Matters on the Mend.—

The frequent brevity of the proceedings in the arrangement of Mexican bridal ties is, however, gradually giving way to a more liberal and conscientious behaviour on the part of parents towards their sons and daughters. But it should also be added that the custom has by no means disappeared, for cases of this nature can still be counted by the score annually in almost every city in the republic.

When, without the knowledge or consent of their parents, two young persons become engaged, the priest has to be formally requested to call on the bride's father for the purpose of making known to him the designs of the bridegroom. A temporary objection at this point may practically upset the plans of the young candidates to marriage, as the opposition of the father means a delay of two years or more.

—Courtship under Difficulties.—

During that period an affectionate lover—for such there are, despite the prosaic custom of the country—parades the street night and day, in the hope of seeing his sweetheart. A thunderstorm would not be sufficient to drive him from his retreat under a balcony. An enamoured swain has been seen talking to a pretty girl through an iron-barred window while a sub-tropical rainstorm pelted down as quietly and naturally as if balmy spring weather had prevailed.

But the Mexican lover enjoys the novelty of the affair, and far from making any attempt to obtain permission to call on his sweetheart at her own home, he is ready to undertake any task, however difficult, in order to speak to her alone; for a young lady is seldom allowed to receive men without at least two or three members of the family being present.

—Circumventing the Chaperone.—

The general topics of conversation about extreme heat, beautiful weather, and the like, are in such cases strictly in order, and the suggestion is never made to take 'her' out for a stroll or a short drive—that would set the house on fire. A moderately large bank account may enable the visitor to invite her family to the opera, but this means that all chances for the exchange of amorous expressions between the lovers are lost, for it is his duty to offer his arm to 'mother' and wait upon her until their return from the theatre, aside from securing seats for every member of the family, sometimes including the servants. But yet, needless to say, 'love finds out the way' even in Mexico to circumvent the conventions.

—'Scraps.'

Hygiene of the Bedroom.

Is sufficient attention paid in every household to the great importance of having bedrooms well ventilated, and of thoroughly airing the sheets, coverlets, and mattresses in the morning before packing them up in the form of a neatly-made bed? If two persons are to occupy a bedroom during the night, and try the experiment of weighing themselves when they retire and when they rise, they will find that their actual weight is at least a pound less in the morning. Frequently it will be found that there is a loss of two or more pounds, and the average loss throughout the year will be a pound of matter, which has gone off their bodies partly from their lungs and partly through the pores of the skin. The escaped matter is carbonic acid and decayed animal matter or poisonous exhalation. This is diffused through the air in part, and, what is far more disquieting, part is absorbed by the bedclothes. Hence the necessity, as pointed out above, of thoroughly ventilating bedrooms, and, above all, of thoroughly and perfectly airing everything that goes to make up the bed.

News and Notes.

The three ages of a woman are her real age, what her friends think it is, and what she says it is.

† † †

The Duchess of Sutherland is an expert dressmaker, and has won more than one prize for designing gowns.

† † †

The average age of brides in Great Britain at present is stated to be twenty-six, and of bridegrooms twenty-eight.

† † †

A woman who wears a stuffed bird in her hat is liable to a fine of from £5 to £10 by a law recently passed by the Legislature of Arkansas.

† † †

Turkish women do not come into control of their private fortunes until after marriage. After that they can dispose of one-third of it without their husband's consent.

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The Young Folks.

A Few Seeds.

Have you ever been inside a bank, and seen there the piles of gold coins? How the clerks shovel those sovereigns and half sovereigns about, as though they were not at all afraid of them! Suppose, now, you were offered a small handful, and I, standing by, said, 'No, take these few seeds instead.' How you would laugh at me! 'Of course' you would reply, 'we choose the money, for we know the worth of it. It can do so much. It can buy things we like or want.'

Quite true! And yet, children, the seeds may be more precious than the sovereigns. When you have spent the gold, you have done with it. But when you have sown the seeds, you are only beginning with them; they are not gone. You must watch for what the sun and rain, and the kindly soil, can make of them. Perhaps they will become lovely flower, or useful herbs, or graceful shrubs. These, again, will have their own seeds which can be planted too. So, you see there is no end to them, because, unlike the coins, they hold life. We know, as you say, what the money is able to do or buy. None can tell, however, the worth of seeds.

But, to begin with, they are of various sorts and sizes, and have different coverings. There is the chestnut, for example whose 'burr' is as prickly as a hedgehog, and there are peas and beans, that form neat rows in pods. Cotton seeds have quite a soft bed to lie in, and the thistle seed has downy wings to fly with.

Certain fruits, such as apples, pears, plums, and peaches, have the seeds buried inside them, while well-known flowers cover theirs beneath the leaves. Notwithstanding these varieties, however, all seeds are alike in some important ways, of which we are now going to chat.

Let me show you. Suppose that underneath the ground I have put a grain of wheat. When quite hidden it begins to stir and turn round. It throws out two threads or fibres—one upward for the

stalk, and one downward for the root. Thus it goes on, through many days and nights, drawing food from the earth and air, getting bigger and stronger, according to a fixed pattern. At first, outside the soil, it looks like a blade of green grass; but presently there is a rising stalk, and then the future ears, each folded delicately in its sheath, until the farmer has countless little packets of flour, in their waterproof cases, ready for use, all over his field. If you had planted a gold coin, or even a sparkling jewel, the former might have rusted and the latter become dim, but neither would have grown. For, remember there is life in the seed.

Now your words and acts are like seeds, because they also have life in them. It may have never struck you before, yet when things are said or done that is not the end of them. They often seem to come up again, as if they were plants, and last much longer than you desire or expect. Some thoughtless remark of yours, which was not meant at the time, and quickly forgotten by you, is heard again and again. It goes on vexing people, and causing you trouble, perhaps for weeks and months. While you may have known a kind little deed not only cheer and help the person for whose sake it was done, but lead to a great deal of good.

The governor of a prison had under his care a number of very bad children. Poor thing! Their parents were criminals, and they had never been taught anything good. The first thing he did was to treat them well, and speak gently to them. Soon, they all burst into tears, knelt down before him, and promised to do whatever he wished. Thus he won them by kindness, for they were not wholly wicked. The seeds of wise patience were duly sown, and the harvest was not a failure.

Our next point surprises everyone, and not the least those who have thought most about it. Seeds multiply so fast. Take a single grain of wheat, sow it in the ground, and then at harvest-time gather the ears it has produced, and next season plant all the grains again. Repeat this work for five or six years, you will be able to fill every suitable part of the world with corn thus grown. So it has been

carefully reckoned by those who understand.

Other plants are more wonderful still in this way. One sunflower has been known to yield four thousand seeds; and one thistle, during a single summer, as many as twenty-four thousand seeds.

Another strange fact about seeds is that the life in them can last such a very long time. Some have been kept for hundreds, and even thousands, of years without being killed. Then, being planted in the right kind of soil, they have sprung up as flowers or trees. I could give you many curious instances of this.

Over in Egypt, ages ago, they built the great pyramids as tombs for their kings. When a Pharaoh (as you recollect each was named) died, they 'embalmed' his body with spices and wrapped it in cloths, and put it respectively on its proper shelf. Usually, also, with these 'mummies' were placed grains of wheat. Now, after perhaps twenty-five centuries the tomb is opened, the dried body brought to the British Museum in London, and the corn may be sown in the ground. Positively, it will grow up into wheat just like any that was harvested from the fields last season.

Be sure to tell your teachers of these facts. I have good reason for asking you to do so. Children may never think of it but those who love them are often troubled and anxious. Much is taught in school and at home about God and His word, about Jesus and His work, and yet a great deal seems in vain. Teachers and preachers—and parents, too—fear lest their words have had no effect. They may enter your minds and hearts, as seeds are buried in the ground; but where is the fruit? Are you getting any real good? Are you growing better?

A minister who thought of this sometimes was asked to visit a dying woman. He knew that she had been living amongst irreligious people, and he went, fearing she might not know of God's love. But, to his surprise, he found her a happy Christian, ready to go to heaven.

'Ah,' she said, 'when I was a child I had a faithful teacher, and from her in the Sunday-school I learned the truth.'

'Did your teacher know?' asked the minister.

'I fear not,' was the answer. 'I was not good to her, and caused her much disappointment. But since I have been ill, I took my Bible and went over all she used say, and I have found Jesus as my Saviour.'

WIT AND HUMOR.

With heavy blows Dick drove a nail
In almost to the head.
That nail is like my grandpapa—
It is infirm,' he said.

'I started at the foot of the ladder,' said the man. 'I did not always have a carriage. When I first started in life I walked.'

'You're lucky,' grinned the youth. 'When I first started in life I couldn't.'

The teacher was giving her pupils instruction in the elements of physiology, and among other things told them that whenever they moved an arm or a leg it was in response to a message from the brain. 'The brain always sends a message from your arm or your leg whenever you wish to move the particular member,' she explained.

At last a mischievous boy aroused her anger by his apparent inattention to the lesson.

'Hold out your hand!' she exclaimed.

The boy did not move.

'Why don't you hold out your hand?' said the teacher.

'I'm waiting for the message from my brain,' said the lad.

Says Mr. E.E. E., in 'Scraps': I attended a lecture the other night entitled 'Freaks of Nature.' At the close the professor asked, 'Is there any one here who can give me an instance of one of Nature's freaks?'

'Yes, sir,' said a young fellow in the audience. 'It is one of the most marvelous freaks I ever heard of. The case is that of a black rag-sorter. His six children are black. There is nothing extraordinary about that, but the freak of the whole family is his wife. Before she married this black she was a white. Now she is a black.'

'My gracious!' cried the professor. 'What a wonderful thing! I must make a note of that family; it ought to be in a museum, and'—

'Don't make so much fuss, professor,' said the young man. 'It is quite a common occurrence. In the first place, A. Black (Arthur Black) is not a black by nature, but by name only; naturally enough, his children would be Blacks also.'

'But the wife, sir—the wife!'

'Oh, she's easily accounted for. When she was single she was A. White (Alice White); now she is married, of course she is A. Black.'

Maud (pettishly)—'Oh, how I do wish I were a man. I'd love nothing better than to be a soldier and fight for my country.'

Ethel—'No doubt you'd make a good one. You're well used to powder, you know.'

'Goodness! We'll miss the opera,' she said, impatiently; 'we've been waiting a good many minutes for that mother of mine.'

'Hours, I should say,' he replied, somewhat acrimoniously.

'Ours?' cried she, rapturously. 'Oh, George, this is so sudden!' Then she fell upon his neck.

The Sunday-school class was listening to a lesson on patience. The topic had been carefully explained, and, as an aid to the understanding, the teacher had given to each pupil a card bearing the picture of a boy fishing.

'Even pleasure,' said she, 'requires the exercise of patience. See the boy fishing. He must sit and wait. He must be patient. And now,' she said, 'can any boy tell me what we need most when we go fishing?'

The answer was shouted with one voice: 'Bait!'

'There goes a man who keeps his word.'

'He does?'

'Yes; no one else will take it.'

Little bits of salad,
Little hunks of cake,
Make a great commotion,
And the stomach ache.

Parke: 'I have a joint account in the bank with my wife now.'

Lane: 'Good! You make an even thing of it, eh?'

Parke: 'Yes; I put the money in, and she draws it out.'

'You'd never rise in the world,' said the yeast to the dough, 'if I didn't work for you.'

'True,' was the reply. 'Neither would I be a loafer but for you.'

'Please, ma'am,' said little Susan Gratebar to Mrs. Staybolt, at whose house she was staying to dinner, 'will you give me a little more asparagustus?'

'Asparagustus, child?' said Mrs. Staybolt. 'Why, what can you mean?'

'Why, I suppose you call it aspara-gus,' said Susan, 'but my papa doesn't allow us to use any nicknames.'

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THE FARM.

The Conservation of Soil Moisture.

Chas. C. Nixon, B.S.A., St. George, Ont.
(Canada.)

It has been observed at the Ontario Agricultural College that for every day's delay in spring seeding, after the first week had passed in which the seeding should have taken place, there was a great decrease in the yield of grain obtained. By actual experiment it was proved that there was an average decrease for each day's delay of 56 lb. of oats, 53 lb. of barley, 29 lb. of spring wheat, and 23 lb. of peas per acre. This was due to the loss of moisture through evaporation.

There are few fields upon which crops of any kind, in any climate, can be brought to maturity, with the maximum yields that the soils are capable of producing, without adopting some means of saving soil moisture. There are fields where, at times, the moisture of the soil is too great, and drainage becomes necessary; but even under these conditions it will usually be found advisable to adopt measures for conserving the moisture not so removed. Plants must have water in order to live. In most cases, the rains of summer are insufficient to meet their needs. We must rely upon stored-up moisture.

Experiments have shown that, on the average, crops require two and one-fourth times the water that falls during the

growing season. It is, therefore, apparent that we must aim to store up water in seasons when no growth is taking place. Some seasons, however, we get too much water and it becomes necessary to make provision for carrying it off. Paradoxical as it may seem, by preparing for a wet season one also prepares for drought. The loosening which favors absorption also favours retention of moisture.

Evaporation is the great source of loss of moisture. Few realise the enormous amount of evaporation that goes on from a given area of soil on a summer day. It has been estimated that from a surface of water 100 x 60 feet, there was an average daily loss from May to October of 20 bbls. At this rate, there would be an average daily loss of 140 bbls. per acre. The amount thus evaporated would, of course, vary with the situation, the exposure and the temperature. No definite data, to show how the evaporation from soil would compare with that from water, has ever been compiled. It is believed, however, that where soil is bare, and it appears moist on top, the evaporation would be equal, or possibly greater.

To conserve soil moisture, then, is the great problem with which we have to do as farmers. The great agency employed for this important work is some system of mulching. Many kinds of mulches are available. The one most generally used is the earth mulch. It is simply a loose blanket of earth which dries out, preventing the water below from passing up through it to the atmosphere. The effectiveness of a simple earth mulch in conserving moisture is beyond the comprehension of the average tiller of the

For GOODNESS Sake Use

VICEROY TEA.

soil. Experiments have proven that a mulch 3 inches deep prevented a loss of 36 per cent. of the moisture lost where no mulch was used. The average saving by means of mulches ranges from 25 to 50 per cent., varying with the depth of the mulch. To be the most effective, these mulches must be formed as soon as the soil is fit to work in the spring, as well as after every rain in summer, if the crop will permit. A delay of one week in spring, or after a heavy rain, will result in a loss of moisture by evaporation equal to one and three-fourths inches of rain, or enough to tide a crop over two weeks of drought. From this data, the advantage of seeding at the earliest possible hour is apparent.

The first effect of mulching is greater evaporation, due to the larger surface of wet soil exposed. This loss, however, is from the stirred soil only. Very little water can pass through a mulch after it becomes dry. Should the mulch settle back and appear moist, a second stirring will be necessary. Mulches should not be made too deeply. They are made of the best soil, and when this is dry it is of no use for plant feeding. Mulches should be made as thin as is possible without permitting too heavy waste of the deeper soil water. The depth of mulches must vary with the seasons and with the crops.

Spring seeding is closely connected with this great problem of conserving soil moistures. Early seeding enables crops to use the water otherwise lost by evaporation. It may also save plant food from leaching in the drainage waters by having made use of this water in the plant

economy. There is danger in too great haste in seeding, however. One might better be a little too late than too early. If too early, the plants come weak and sickly or the seed rots in the soil. The effectiveness of tillage in conserving soil moisture is greater in the spring than at almost any other time. In the spring there is invariably a wet surface exposed, and this wet surface carries the water off much more rapidly than can dry soil. Too frequent stirring of the soil is undesirable. One should aim to keep simply a dry, loose blanket of soil, which will make the effective mulch. It frequently happens that owing to the area to be covered, it is not possible to work it all as early as would give the best results. In such cases, where one has not time to form a thorough mulch, a single cut of the disc, or even of the spiked tooth harrow, will work wonders in conserving soil moisture.

All mulches need not be made from soil. Some of the best and the most effective are made from manure. By applying barnyard manure as a top dressing one obtains a physical, as well as a chemical benefit from it. The seasons' rains wash the fertilising constituents into the soil, where they will be available to the plants. The refuse remaining on top makes an effective mulch for retarding evaporation. This double action of manure, when applied as a top-dressing, is a strong argument for pursuing this practice and for making use of the manure-spreader, in order that the manure may be more advantageously applied.

The problem of soil moisture is intimately involved in the method of cultivation practised for root crops. With

flat cultivation, less surface is exposed to the action of the atmosphere; hence there is less evaporation and consequently larger crops. It is well known to all that root crops, when grown on ridges in seasons of drought, have small chance of succeeding. This accounts for the growing popularity of the level system of culture.

Under-drainage is also a large factor in conserving soil moisture. It is a matter of common experience that crops on well-drained soils will withstand drought better than those on similar soils not so well drained, although the crops at the commencement of the drought were equally good. The explanation of this phenomenon is, that drainage always improves the texture of the soil. With this improved texture comes increased capacity for retaining water.

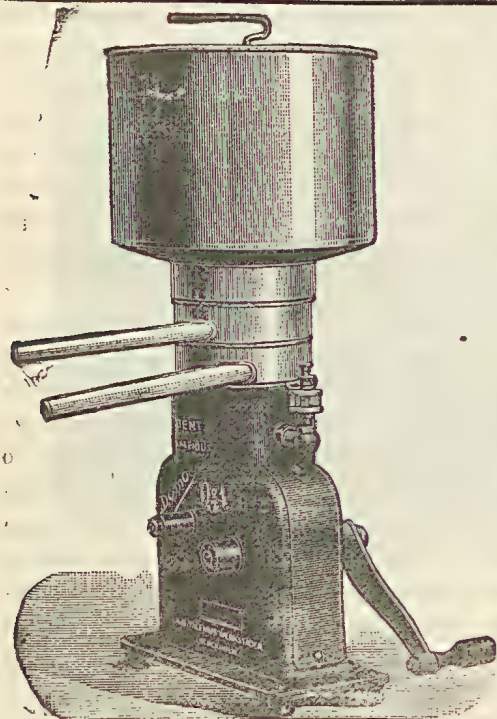
Windbreaks and hedges are highly beneficial in conserving soil moisture. Especially is this true in times of high wind, and particularly in connection with lighter soils. The clearing of forest areas and the diminishing size of our wood lots is involved in this question. The winds attain a greater velocity than ever, and a consequent greater loss of soil moisture is the result. Windbreaks and hedges, by holding the snow in winter, also add greatly to the moisture content of the soil through the melting of the snow in spring.

When we realise the full force of the tremendous loss of soil moisture through the agency of evaporation, we will look to it in future that this loss is held in check by the timely use of the simple, yet effective, means at our disposal.

—'Agricultural Journal' of N.S.W.

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THE DAIRY.

Bovine Tuberculosis.

Despite Professor Koch's statement that bovine tuberculosis is not communicable to man, public fear on this point has not been allayed, nor has the dread of the disease been lessened for the stock-owner. But when combined effort is made to combat the disease tuberculosis can eventually be checked and reduced. This is strikingly shown by the results achieved in Denmark. In a few years the disease, although it has not been eliminated, has been wonderfully reduced through a system of voluntary effort and this, after compulsory measures had been introduced by the Government and had failed to accomplish their purpose. About twelve years ago the dairy herds of Denmark were as badly infected with disease as those of any country, but at the present time, according to a recent official report, there is less tuberculosis present than there is in other European countries or in America. The Bang system of isolation has been followed, and the effect has been

greater than was anticipated. Its success has attracted the attention of other countries, and in Canada and Scotland, where tuberculosis is becoming more widespread the Danish example is everywhere being held up for imitation. Of course, in a country where stall-feeding is so widely practised isolation is a simple manner. But, as has been pointed out, the stock-breeder who grazes his cattle has the assistance of fresh air in fighting the disease.

—Bang's System.—

Denmark commenced its repressive measures in 1903, and a number of provisions were enacted preventing the showing of animals known to be infected and the sale of milk from effected cattle. But the immediate results came from a voluntary and self-imposed system of treatment. 'Many owners have changed their herds from a badly tuberculous condition to a condition of entire freedom from this disease,' states a writer in the 'Breeder's Gazette,' 'and this has been done without serious loss, except by the disposal of animals showing advanced stages of tuberculosis.' One of two systems are adopted. A cattle-owner either acts on the assumption that the whole of

his herd is infected, or else he applies the tuberculin test, and then separates the sound from the tainted animals. It is the next generation that he expects to get the best results from. Where a whole herd is treated as tuberculous, the calves are isolated, and they are reared upon milk that has been boiled, to kill any germs that might exist. Then, the calves are tested twice a year to ascertain whether the disease is present. In either case the testing is carried out. This is the method introduced by Professor Bang. The calves are separated from their mothers the second day after birth (on the first day the colostrum is indispensable), and fed on boiled milk only. Some weeks afterwards they are inoculated with tuberculin, whereupon those which react are eliminated. Secondly, all the cattle of a herd are inoculated, and the unhealthy are slaughtered as soon as possible. Tuberculin inoculation is carried out on all cattle twice a year.

If a farm will not pay when well farmed, it will certainly not pay when not farmed at all. So with a cow in milk; if she will not pay for fairly generous feeding she will not pay on short commons.

A Curious Cow.

Dr. James Anderson, in his 'Recreation in Agriculture,' mentions a very curious cow (says the 'Live Stock Journal'). 'I know one' he says, 'which yielded abundance of milk, but from which no butter could ever be obtained by any process that could be devised, and it is not a little remarkable that that cow had been kept for several years by one person without its ever being discovered or even suspected that her milk had that quality. The milk had always been mixed with that of others, as is usual in large dairies, and it probably would never have been discovered at all had she not been sold to a person who kept no more than one cow.'

Miscellaneous Items.

Waste is inimical to prosperity in dairy-farming, as in many other arts and industries.

The cow should be turned dry from four to six weeks before freshening, but her feed should not stop.

In teaching a calf to drink it always is best to use two fingers, holding the two while in the calf's mouth slightly apart.

Dairy cows are like sound land—if they are well and wisely fed they will feed their owner's pocket with what he works for.

To make the animals comfortable always means influencing the milk supply favourably. Cows must be kept from draughts, chills, and wet.

The Yak, sometimes called the grunting cow, is a native of Thibet, where its milk feeds the people and its hide brings money. A small herd of yaks is being taken to Canada for experimental purposes.

The interior walls of the dairy should be kept clean and light-coloured. If white-wash is used, a fresh coat should be applied at least three times a year, and oftener if necessary, to keep the walls clean and white. Mould spots should not be permitted.

The obtaining of cows of the best possible stamp for dairying purposes in open markets is a very difficult matter.

To have the heifer develop into a profitable cow, her first milking period must be extended as long as possible, in order to produce a fixed milking habit.

For many years potatoes have been given to dairy cattle in various parts of England. For an ordinary dairy cow a peck of potatoes per day is an adequate allowance. When raw the potato is of more value for milking cows than turnips, while its value is increased more than two-fold when cooked.

All cows should be milked clean out. There are three reasons for this—secretion of milk is kept up and increased by the action of milking, the last white fluid from a cow's udder is the richest, a perfectly empty udder is not so liable to become diseased as one in which part of the milk is left.

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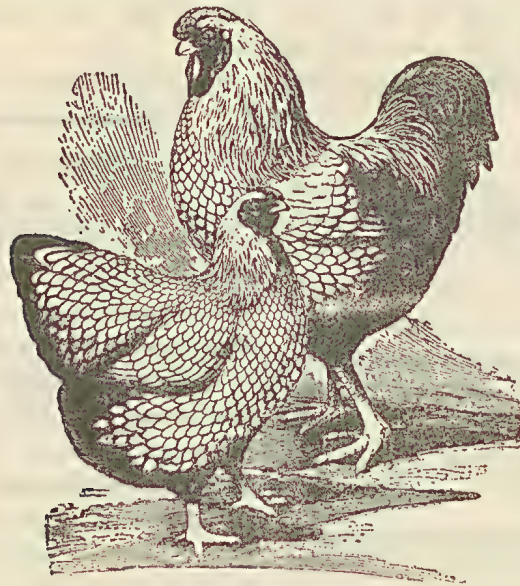
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Diseases of Fowls.

G. BRAGSHAW, in the 'Agricultural
Gazette of N.S.W.'

(Continued from last issue.)

—Catarrh, Cold in the Head—

The symptoms are usually a discharge of a thin fluid from the eyes and nostrils, sometimes mucus in the mouth, and sneezing. There may be swelling of the head and eyes, but unlike roup, it is not contagious, but if not attended to may result in that serious affection.

Roosting in draughty houses, damp and cold, are the causes of the disease. A cure can usually be effected without a recourse to drugs, or at least by the use of those of a simple character.

When catarrh is confined to the eyes and nostrils, it is usually known as cold in the head; the symptoms being watery swollen eyes, a discharge from the nostrils, ruffled plumage, and general dullness. When neglected the nostrils become blocked up, the sticky discharge seals up the eyelids, and the first stage of roup ensues.

When catarrh is noticed, the fowl's head and eyes should be washed with warm water, the fluid from the nostrils squeezed out and syringed thoroughly. This repeated a few times will frequently effect a cure.

The nostrils should be syringed with warm water, into which a few drops of Condy's Fluid or other disinfectant have been mixed, and the mucus thoroughly squeezed out. This repeated two or three times will usually effect a cure.

Lewis Wright recommends a dose of 20 grains of Epsom salts, followed up by 2 or 3 drops of eucalyptus and terebene every three or four hours, or the above may be put in the fowls' drinking water. The majority of colds will yield to the above simple treatment, but the affected bird should be separated from the general flock, and kept in a place free from draughts.

—Cholera.—

This virulent disease has been previously treated. Post mortem examinations show that it is caused by a living germ—'The Chicken Cholera Germ.' The germs may be carried in water, food, manure, &c. It is usually fatal in from twelve to thirty-six hours. The symptoms are great thirst and incessant purging, the evacuations

become like rice-water, and later streaked with blood.

—Catarrh.—

Catarrh is a simple inflammation of the mucous membranes or linings of the air passages. Catarrh is not roup.

—Debility.—

Debility is sometimes known as going light, and is a more general term for anaemia. It refers to a condition in which there is a wasting away, for which there is no apparent cause, loss of appetite and want of vigour being the only observed symptoms. Many causes may be responsible for the disease, the seat of which may be the heart, liver, lungs, bowels, &c. When no cause can be ascertained, the best thing is to try and build up the constitution, and one of the best things for this is a raw egg, beaten up in, say, a tablespoonful of cod liver oil, and 1 grain of quinine—one teaspoonful to be given twice daily. Fine-chopped raw meat is also good, together with a full supply of green food. Half a teaspoonful of Parrish's food given daily will also do good. Another useful remedy is 2 grains of extract of gentian, 1 grain iodide of iron, and $\frac{1}{2}$ grain of nux vomica—made into a pill, and given twice daily.

(To be continued)

Do Hens get to Fat to Lay?

Many poultry owners hold the belief that hens, to lay properly, should not be too fat. On this point, Professor James E. Rice, a well-known poultry expert at the New York Experiment Station, says:—

'Last fall we killed a large number of hens, and found that the fattest hens were those in the best laying condition and since that time we have been making careful observations on that point. A hen to be in good laying condition must have fat in her body. The production of eggs is based upon one of the experiments, and we found the fact that the hen has lots of stored-up energy in her condition; and a hen cannot lay an egg until she has got fat in her body, because the yolk in an egg is about half fat, and she has got to

have oil there to make the best part of the egg. The fattest hens we killed were in the best laying condition, and the poorest hens we turned out by themselves, and there was not the faintest chance of their laying for two or three months.'

There is no doubt but that the laying of eggs requires a great deal of 'stored-up' energy in the hen, and it is naturally to be presumed that a hen in good condition would be more able to stand a drain on her system than a poor bird. The matter of fat in hens we believe is a great deal like high condition in breeding stock of any kind.

Poor breeding or poor egg production is not caused so much by high condition as by the manner in which this state was brought about, and the subsequent care given. A good plump form, resulting from proper feeding of proper foods, followed by proper care, will not be conducive to bad results in the 'pen. A hen needs lots of nourishing food if she will continue to lay eggs; a starved hen will not fill the egg case very soon. Too much fat, however, and too little exercise is a cause of hens not laying. But there need be little fear of a hen becoming too fat is she healthy, and has the proper amount of exercise. Herein lies the reason for feeding grain amongst a straw litter in the winter time. Do not feed a single grain, and that one extremely rich in fat-producing elements, but feed a mixture, the more kinds the better, and feed it in a good litter so that the hens will have to hunt for it. High condition caused in this way will not be the cause of non-egg production.

'Queensland Agricultural Journal.'

Selecting Laying Stock.

H. V. Hawkins, Poultry Expert.

There are a great many methods advertised in various pamphlets and papers stating that, if you will practise this or that method of selecting as laid down in the paper, you will be able to determine the drones from the workers. The writer has tried a few of these so-called certainties, and has come to the

conclusion the trap nest is the only accurate test. It is by selection and keeping records, that advancement is made along this line.

Each hen has her own individuality, i.e., certain hens lay eggs that are in nine cases out of ten hatchable. Some hens lay well, but, although their eggs are usually fertile, they will not hatch whether set under a hen or placed in the best incubator. The chicks develop to a certain size, in many cases being fully formed, but die in the shell. Again, many hens lay eggs that are seldom fertile.

In selecting birds one has several objects. The saying 'that the hen that lays is the hen that pays' is often heard. The majority of those engaged in the poultry business consider egg production the best end of the business. It is often the surest. There is not the same amount of risk attached to it. At the same time if people are foolish enough to believe that Mr. So-and-So can supply eggs from hens, tested by the so-called new system, which have produced 300 eggs per annum they have more faith in the advertiser and the hen than the writer has.

There is no doubt that certain characteristics should be looked for in a good laying hen. She should be low set and stand on a pair of shanks fairly wide apart. The head should be nice and clean cut with a full bright eye. In other words, hens should show feminine character and not wrinkled and sunken features. Hens of the latter type should be discarded; in short, masculinity in the hen is a bad sign. A hen with a large capacity for food, i.e., has a large crop (crop), is usually a payable bird to feed. The smaller the sack of food she takes to roost at night the fewer eggs will she produce. Dairy men know that a cow must have plenty of room for food, in order to produce a large milk yield.

The advertised systems serve one purpose, viz., by examining the lay bones the amateur knows which bird is about to lay, or is laying. Should the lay bones be relaxed to the extent of about three fingers (closed) the bird is laying; if they are almost in contact, that is the hen to market, but so much depends on the

time of year one wishes to sell table fowls.

—Victorian "Journal of Agriculture."

Preserving Eggs.

By a novel process of preserving, eggs six months old (says the 'Daily Mail') are able to retain their 'new-laid' freshness. The process has been adopted by a firm of Hull importers, acting on the theory that an egg decomposes owing to the entrance of bacteria through the shell. The shells by the new process, are first disinfected and then immersed in a vessel of hot paraffin wax in a vacuum. The air in the shell is extracted by the vacuum, and atmospheric pressure is then allowed to enter the vessel, when the hot wax is forced into the 'pores' of the shell, which thus hermetically seals it. Evaporation of the contents of the eggs, which has a harmful effect, is thereby prevented, and the egg is practically sterile. Some 'new-laid' eggs treated in this manner six months ago (the date being guaranteed by Mr. Thomas A. Robinson, J.P., the head of the firm), have been submitted to chemical and microscopic examination by the 'Daily Mail,' and have been found equal to new-laid eggs in every respect. The yolk of pickled eggs and others artificially preserved will sometimes break on being poached, but the eggs examined behave when poached exactly as new-laid ones. The inside of the shell showed under careful examination, that the wax penetrates through the 'pores,' the contents being thus quite immune from external influences. The advantage of the process is that the eggs will fetch 48/- per 1,440 more than those preserved in lime-water or by water-glass, and 32/- more than those kept in cold storage. Thousands of tons of eggs are preserved every year in this country by various processes, but the quality of the six months old 'new-laid' is such that the present amount may shortly be greatly increased.

Poultry-raising is getting to be of much more importance to the average farmer than it once was. Farmers are beginning to realise there is a big profit in chickens.

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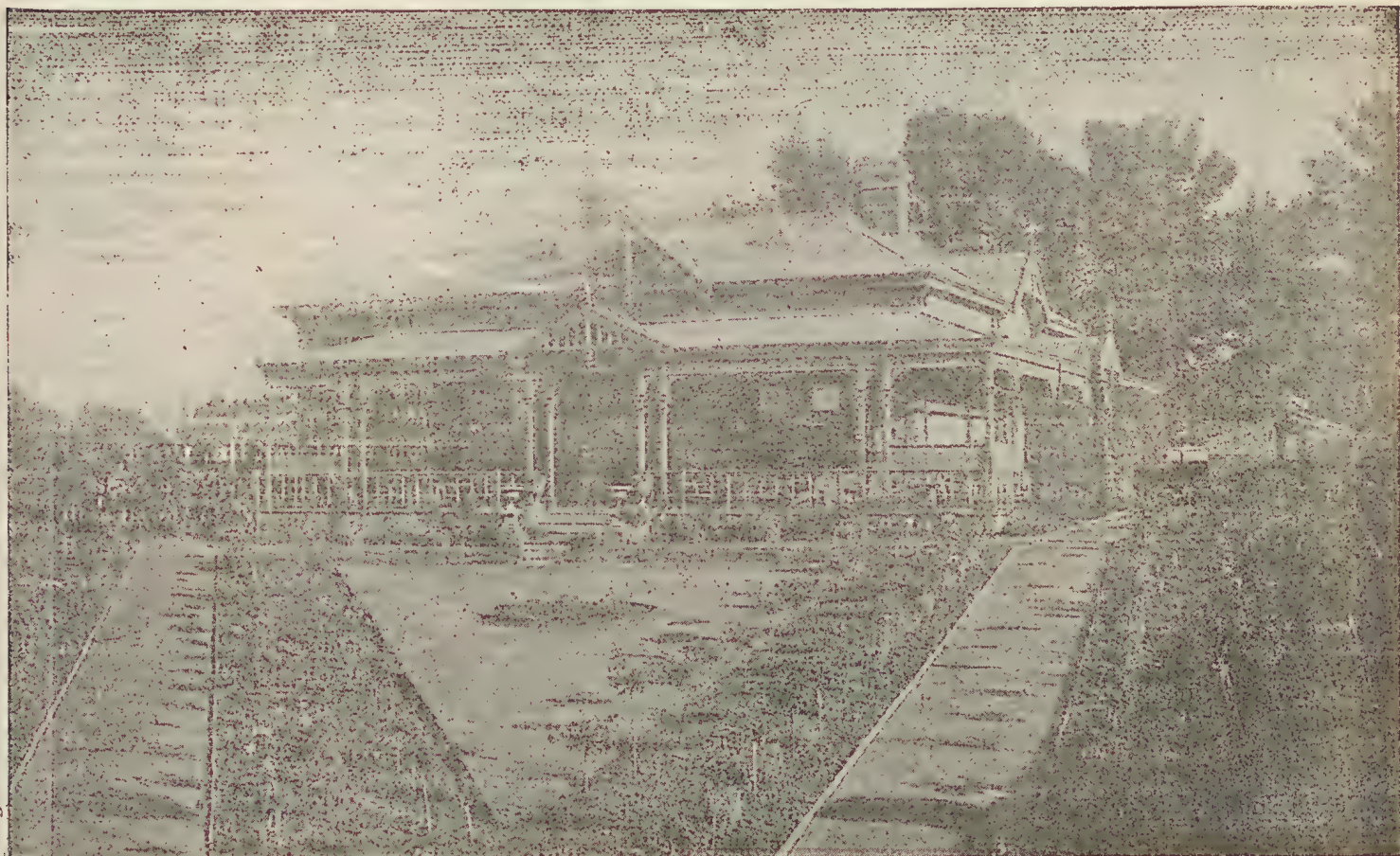
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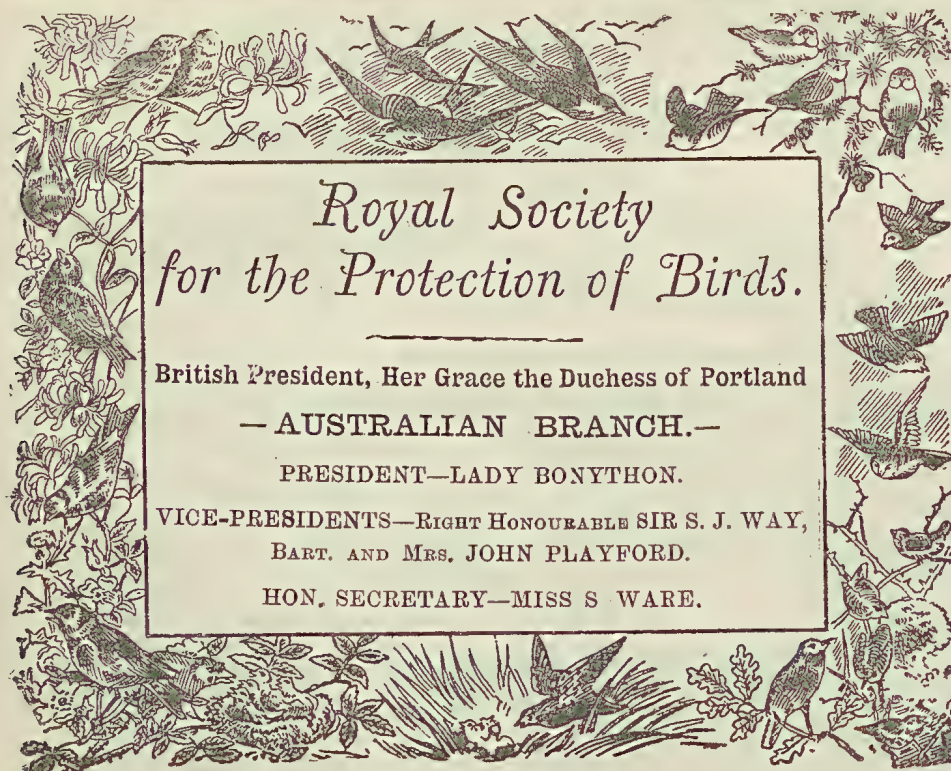
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Several Aspects of the Protection of Our Native Birds

[By Walter W. Froggatt, Government Entomologist, in the
'Agricultural Gazette of N.S.W.']

The writer, from his earliest boyhood, has known and loved the birds and animals of Australia, and no one is more interested, both from an economic and sentimental point of view, in their protection. He hopes to see all the existing Acts simplified, and enforced by some recognised authority. At the same time it is recognised that, unless the people themselves are awakened to the beauty and value of our wonderful bird and animal fauna, no Act, however good, can be of much use.

Nature study is the order of the day; our children are all being taught the wonders of the wild bush around them. Once let our schoolmasters take up the cause of the 'beasties,' both great and small, over the length and breadth of the land, and the birds' nests will not be destroyed. We will not see strings of birds' eggs, collected by a misguided student of nature, festooning the master's study, or the ladies adorning their hats with the more or less grotesquely stuffed skins or heads of birds that have been unfortunate enough when alive to be good looking.

If the fashionable lady, with the heron plumes in her hat, thought of the dead nestlings left to starve to death because

their poor mother had some fine feathers on her head, would she wear them for a single day?

There are many side issues in a matter of this kind, some of which I have tried to point out in these notes, and which are not taken into consideration by many people.

The protection of our animals and birds must be carried out in a practical manner, both on a scientific and economic basis; we must know something about the habits of the creatures we are protecting, so that we do not include any species that the man on the land can prove to be injurious.

We would do well to look round and see what is happening in other parts of the world. Though many countries have had game laws in force for hundreds of years, with very drastic punishments meted out to the man who shot the king's deer, as in the good old Norman times in Merrie England, for instance, it was only within quite modern times that such a thing as protecting birds and animals was considered in any other manner.

The first Acts to come into force have always been game laws, not to protect birds for their beauty or use to the community, but they might increase and

breed, so that they would furnish sport to the hunters, who, in some instances, were the wealthy few, who had their sport at their expense of the general public. Later on, game laws were modified on a more honest plan to protect the animals and birds with a 'close season' so that they could breed without being molested, for they were recognised as having a cash value as game.

Next came the practical observer, who pointed out that the birds which fed upon insects that destroyed plants, pasturage, and crops must have also a cash value to the man who made his living out of the land. Then we had the first Bird Protection Acts for the preservation of insectivorous birds, because they destroyed insect pests and other vermin.

The protection of our native fauna must start with an economic basis, not a sentimental one. First, show the man on the land the economic value of the bird or beast; demonstrate that the bird is working for him in devouring destructive insects, or has a value as game, and he will not allow its wanton destruction, and you will need no policeman nor warden to enforce the clauses of the Act. Then let the teacher come along and show our rising generation the beauty of form and colour, the place in the woods and fields of each living creature, and he will soon create the sentimental side of the question, and our birds and beasts will be protected simply because they are birds and beasts and do no harm, but add to the beauty and cheerfulness of the surroundings.

We have in each of the Australian States a more or less comprehensive Bird and Animals Protection Act, each of which, with perhaps a few minor alterations, is quite sufficient to do all that is required, if it is only enforced. There is very little use in passing an Act of Parliament if there is no machinery to enforce it; and, broadly speaking, all our Bird Protection Acts are dead Acts, because there is nobody whose business it is to carry them out. Like many other things that nobody else wants to deal with, they are passed on to the poor harassed district policeman, who, however willing, has not the time, if he had the special knowledge required, to administer them.

(To be Continued.)

Those desirous of joining the Royal Society for the Protection of Birds should communicate with the Hon. Secretary—Miss S. Ware, 112 South Terrace E., Adelaide.



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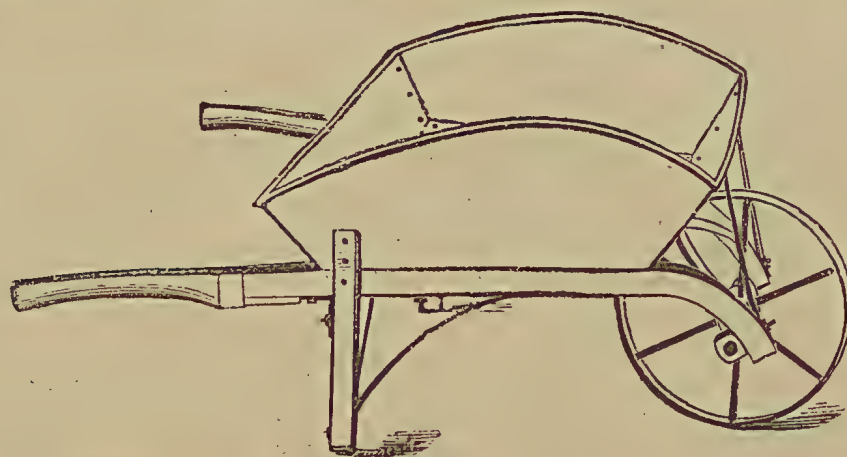
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EDITORIAL.

The Flower Garden—

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PROTECTION OF BIRDS—

Several Aspects of the Protection of
Our Native Birds

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NOTICES.

ALL COMMUNICATIONS, literary or business, must be addressed to the Managing Editor "Australian Gardener," corner Wyatt and Pirie Streets, Adelaide, and not to any individual member of the staff.

SUBSCRIPTION.—Posted to any address in Australasia, 3/6 per year, in advance. Subscriptions can commence at any time during the year. Specimen copy free.

CANVASSERS WANTED in every town to solicit subscriptions. Very liberal commission.

WHOLESALE AGENTS have been appointed in every State in the Commonwealth, viz.:

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TO ADVERTISERS.—Particulars of rates will be supplied on application. Alterations of advertisements must be in our hands not later than the 15th of the month.

Answers to Correspondents.

'D.D.'—This is an agricultural journal—not a political one—so we cannot publish your letter.

'N.D.' Unley.—The proper time to prune flowering shrubs is directly after they have flowered, cutting away the shoots that have borne blossoms to make room for new shoots to bear flowers the next season.

'L. Cerne,' Uraidla.—This is a very good month for sowing lucerne. Sow 10 to 12 lbs. of seed per acre broadcast, or 8 to 10 lbs. per acre in drills. The soil should be thoroughly pulverised before sowing, and the seed lightly covered. The proper time to cut lucerne is just when it comes into flower; it may be cut several times during the season.

'P.S.' North Adelaide.—Fowl's dung may be used for all purposes for which ordinary animal manures are used; but it must be used with great care, as it is of a very heating nature, and may burn the roots of plants to which applied. The best way of using this material is to

mix it with dry earth, say, half of each and keep it in a perfectly dry condition for some months before using. For vegetables, especially for plants of the cabbage family, it is excellent; but it should not be used as a top dressing. In using fowls' dung for carnations and flowers, generally it must be used with great caution. It makes a valuable liquid manure. No good object would be achieved by burying it in a mass in the ground.

'Orchardist,' Malvern.—An excellent winter dressing for apple trees is made by taking 40 lb. of lime, 20 lb. sulphur, and 60 gallons of water. This is made by boiling 50 gallons of water and adding 10 lb. of lime. Then take the sulphur, and rub it through a fine sieve to crush all the small lumps. When thoroughly sifted mix small quantities of sulphur and water in a tub or bucket, gradually adding more. In this way the sulphur will become incorporated with the water instead of floating on the top of it. Add the sulphur thus mixed to the boiling water and lime, putting in further small quantities of lime, and stirring the ingredients well from the bottom as each lot is added. Boil well for 20 minutes and allow to cool. Salt is sometimes added, but the latest experiments have proved that its presence is not necessary.

EDITORIAL.

Eleven years! Time swings swiftly by. THE AUSTRALIAN GARDENER is in the eleventh year of its establishment. During this term it has grown with the lusty strength of the eagle. From a modest sixteen pages it has nearly trebled in its bulk of information. The 44 pages contain a great lot of news and instruction of the very best and reliable quality for the producer. Our clients who are advertising with us appreciate the fact that the paper is of a technical character and its circulation is amongst those who take a real live interest in their business. No matter whether their business is in primary production or in retailing their produce, or in buying and selling articles of luxury or necessity, the reader of THE AUSTRALIAN GARDENER is the one that finds the information first hand in the reading matter and the advertising columns. The cost of pro-

ducing a newspaper on the lines we have adopted is heavy, and our prices for sale of the paper and for advertising space are cut as fine as it is possible within the limit of a small margin of profit. We now ask our clients to renew their interests with us for mutual benefit.

† † †

The issue for July contains a number of useful articles for the fast advancing warm weather, although the cold that is now being experienced makes it seem a long cry to warmth. A few weeks, however, will tell a different tale, and people will forget the icy coldness of the present. It is only the producer who knows the value of frost. Most people regard frost like they do most other things that cause a little inconvenience. We are not now thinking of potato-growers, who particularly have no love for 'Jack Frost.' We are alluding to the value of frost to those who have been turning over their ground for fallowing in fields or planting in orchards. Frost has the effect of breaking up the soil in a way that is not easily understood and sterilizing its constituents.

† † †

The outlook for the season never was better, although the hills people have been longing for a few weeks of sunshine. Just now when they are up to their eyes in planting and pruning and spraying a day or two makes a heap of difference to them in working out their plants for coming crops.

The Melbourne Tailoring Depot, No. 10 ARCADE, Adelaide.

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Please mention this paper.

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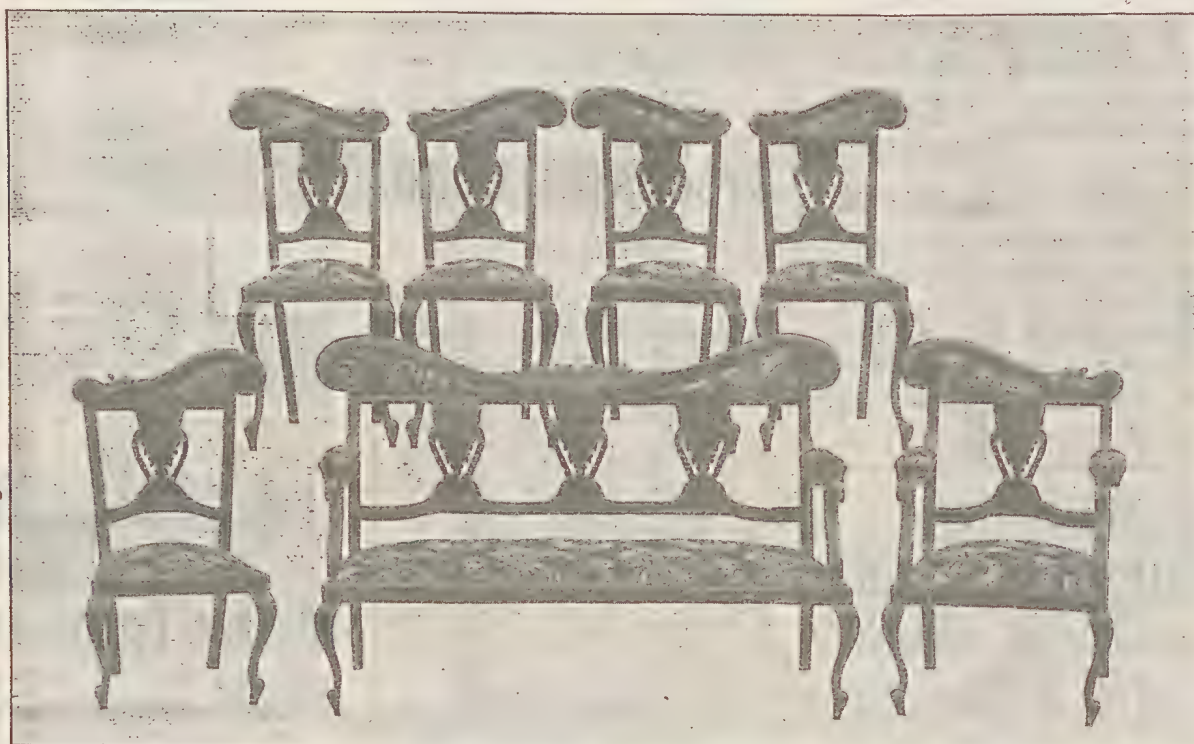
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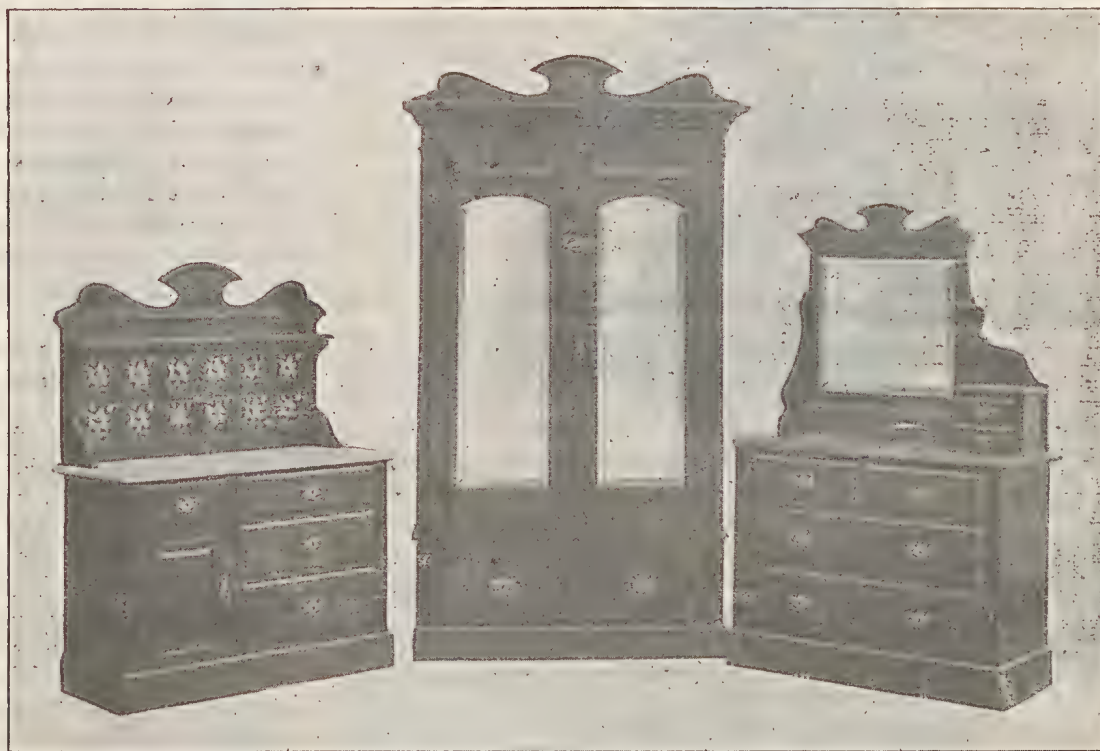
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HELICHRYSUM.

Helichrysum is the most common species of everlasting flowers, and probably the most useful of all, as it can be had in such a variety of colors from the bracteatum type, from pure white to scarlet-crimson, with innumerable tints between. They ought to be cut in a variety of stages, from small buds to fully expanded blossoms, to obtain the widest range of variety. Helichrysums are very suitable for small as well as tall vases, and for bouquets and wreaths. If our readers made a sowing of Helichrysums when advised in this journal, the seedlings should be ready to transplant with the other annuals this month.

The Flower Garden.

Notes for the Month.

— The Open Beds. —

All the beauty of autumn flowers, such as Chrysanthemums and Zinnias, which are amongst the showiest bloomers, have given signs of decay, and the erstwhile beautiful Dahlia plants all help to fill up the beds with gaunt looking objects that have done their duty in flowering. All the useless top growth must be dug up and cast aside if this has not already been done. However, before setting fire to the rubbish heap care should be observed to see that a stool of each variety of Chrysanthemums has been carefully set aside in some sheltered corner, kept for the purpose of preserving them. They will be wanted for replanting in August or September. The same with the perennial Phloxes.

Zinnias will have been dug out of most garden plots, although in favorable situations they may be kept going in

flower even up to the end of the month. But the bulk of these plants are now on the rubbish heap, and probably a number of gardeners have not troubled to keep the seeds. This should have been done from the best flowers, and set aside for sowing in the early spring.

Coxcombs, too, in a like manner, should have had the seeds taken out for planting in spring. By the way, it is a little strange that these very showy plants are so much neglected by the amateur gardener. They are just as easy cultivated as any other flower, and make a good variety for any garden.

Snapdragons (*Antirrhinum*), perennials, have for some months been giving a continuous supply of seeds after their vari-colored blooms, some of which are exceedingly pretty, and the best of them having been kept, named, and planted, are coming on again as seedlings to be planted out during the month of August, although forward plants from the nurseries will be of full growth already.

Balsams, which were flowering right up to the middle of June, are amongst the most highly prized open garden plants, although, being thirsty growers, they require a plentiful supply of water. The beauty of these flowers is not shown to the best advantage, because of the close growth of the leaves with the blooms, but as pot plants they can be much better appreciated. The blooms have a modest habit, too, of hanging their heads, possibly owing to the weakness of the flower stem. They should be more popularly cultivated. Some of the Solferino variety and the Victoria are charming blooms. The double and single blossoms are equally pretty, and the seeds of these should be kept for planting in the spring.

— Young Plants. —

By the first of this month most of the hardy and half-hardy annuals will have been planted out into well-dug plots, put into good heart by a full layer of old stable or cowyard manure turned in. If possible to get it the best manure is obtained from stables bedded with sawdust. This makes a compost, after having been well rotted, that will grow most plants.

It is not too late in the season to remark that the preparation of the soil is of first importance to successful gardening. Care should be taken to see that the soil is well drained. If not, the ground will become sour and soddened with water, especially during the winter rains.

Seedlings are very tender little things, and in planting them out three essential elements should be observed. First, the preparation of the soil, upon which their life depends, and future gratification of the gardener. The ground should be well manured; well dug, with the top soil in a fine tilth; and well drained. The man who will not dig with the blade of the spade completely hidden up to the shoulder does not deserve the pleasure of getting pretty flowers, and the chances are that he will not be so rewarded. Second, they should be protected from frosts, slugs, and snails, which are their common enemies, and against which they

cannot protect themselves. A piece of newspaper is generally handy, and this put over the little plot will protect it from frost. Many are the devices recommended to kill slugs. We recommend the sole of a boot, or the garden trowel, as the most effectual. Third, watering. Do not wash them half out of the ground with the spout of a watercan. Use a fine nozzle or rose. When planting be careful to observe the size and strength of the little plants. Plant the larger and stronger growths in the centre of the plot and grade the smaller ones off to the edges of the circle, or whatever shape the plot may be designed. In this way the plants will grow better, and when in full bloom a much prettier effect will be given than if the seedlings are planted in a promiscuous fashion.

Record Prices for Orchids.

In 1906, 1,150 guineas were paid at public auction in England for an *Odontoglossum crispum pittianum* Orchid plant consisting of three bulbs and a young break. The blossom is described as being most exquisite in color and delicacy of form. At the same sale, 800 guineas were paid for an *F. K. Sander*, 470 guineas for an *Abner Hassal*, and 400 guineas for a *Pittice*, and in the previous year 875 guineas were paid for an *Odontoglossum*. From the foregoing, it would appear that a fortune awaits the grower who can produce certain varieties, but, probably, also, it would require a small fortune to obtain the bulbs wherewith to build up the fortune in posse.

—'Queensland Agricultural Journal.'

A Lost Orchid Rediscovered.

In 1905 the 'Lost Orchid,' *Cypripedium fairrieianum*, was rediscovered by an Englishman, and he, with Mr. S. P. Chatterji, the well-known florist and nurseryman of Calcutta, have the secret of its natural habitat between them. They had, in the year mentioned, a fine stock of plants, and became entitled to

the reward of £2,000 (says 'Indian Gardening') offered by a certain London firm of plant merchants to anyone who would rediscover the 'Lost Orchid.' The locality where this Orchid was found remains a profound secret, at least, such was the statement made at the time, but, suffice it to say, it was not found in the Garo Hills, its supposed natural habitat. There was no doubt at all as to the identity of the plant, as it was submitted to Dr. Prain, Superintendent of the Royal Botanic Gardens, Calcutta. This was probably the most important and sensational announcement that the horticultural and botanical world has received for many years. The plant was lost to the world in 1876, and, until its rediscovery, may be said to have been practically extinct in Europe.

A Gardener's Son who has Earned over £100,000.

Kubelik, the violinist, who, by the time he was 26, had earned over £100,000 by his playing, writes a correspondent of the 'Gardeners' Chronicle' (Eng.), is the son of a gardener at Prague. He has inherited his father's horticultural tastes, and on his recent world's tour took the opportunity to collect specimens of tropical trees, roots, and plants to embellish his own beautiful garden at Kolin, where he lives, within a few miles of his birthplace. He says Colombo is the loveliest place he has ever visited, but no one could conceive the floral beauties of the Sandwich Islands. Flowers are so abundant there that they grow even on the roofs of the houses. On leaving his concert at Honolulu, the populace accompanied him in procession back to his ship. Each of the processionists carried a wreath of flowers. These wreaths they presented to him, and they were piled up on deck. As the ship left the island the visitor had to throw some of the wreaths over his shoulder into the sea. This is a native custom betokening a 'farewell to Flower Island.'

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Early Cucumbers, Jewel of Koppitz, Short Prickly, 6d per packet

Yard Long or Snake Beans, 6d per packet

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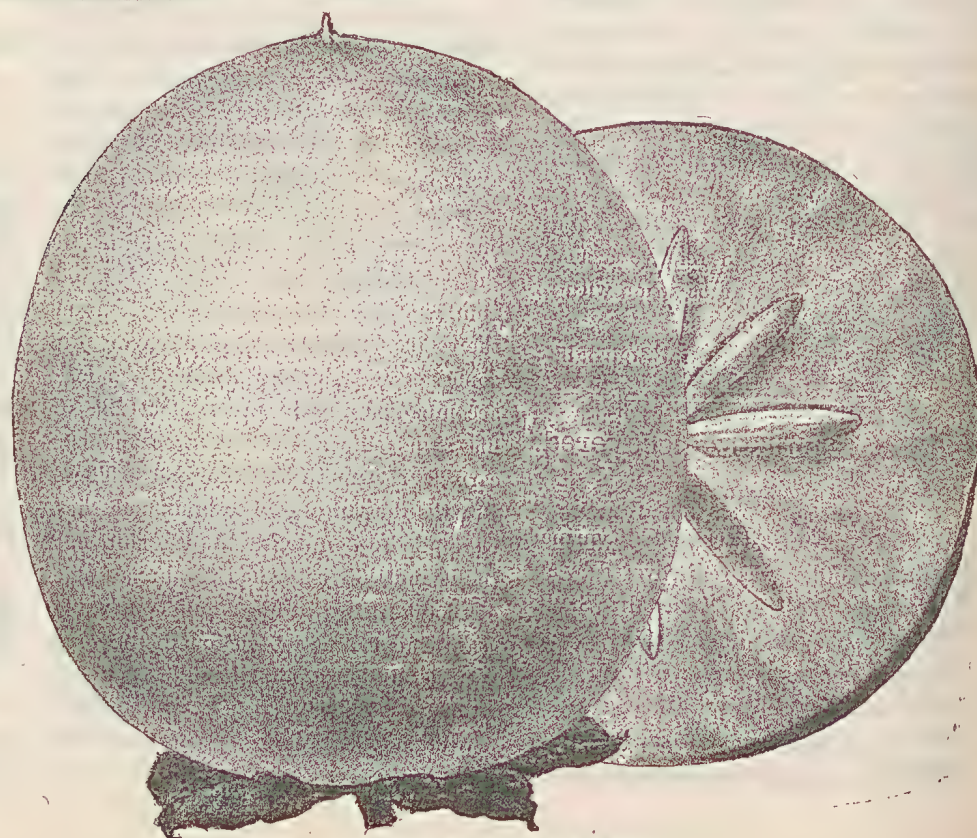
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**JAPANESE PERSIMMONS.**



DOUBLE FRINGED PETUNIA.

Description of Flowers.

Petunias.

The Petunia derives its name from Petun, the Brazilian name for tobacco. No garden in Australia need be, or really should be, without Petunias. They are seldom out of bloom from January to December. As bedding plants for beauty and display they take the palm. The Petunia as a summer flower is much neglected. It is essentially a lover of hot weather, and, given even a moderate supply of water, will make a grand show in the garden. To keep up a constant supply of bloom the plants should be repeatedly cut back. Any ordinary garden soil suits them, and the young plants should be placed 12 inches apart. The double-fringed variety is the most handsome, and, as it is a greedy feeder, should be given plenty of stable manure while the plants are growing strongly. Old plants may be cut down in spring and started in heat, or cuttings may be struck in spring to flower the same season. They require rich soil, and, if grown in pots, plenty of pot-room.

Petunias, in their many beautiful varieties, form a highly interesting and desirable class of free-flowering plants for garden culture, those of the grandiflora section, both single and double flowered, being specially valuable. The blooms of these are of immense size, beautifully formed, and of the most charming and delicate colors; some of the flowers are exquisitely veined or pencilled, others blotched or striped. The 'fringed' varieties (both double and single) produce some charming flowers, the edges of the petals being elegantly cut or fringed, whilst the colors are most varied and beautiful. The Petunia is well adapted for pot cultivation, and on account of its hardiness and free-blooming qualities, makes an excellent window or verandah plant. A soil composed of equal parts of loam and thoroughly decayed cow dung, with plenty of sharp sand added, forms an excellent compost for these; but the seeds, being very small, require special care in sowing. Fill your pots or seed pans to near the rim, and press the soil down firmly and evenly; sow thinly, and cover the seeds

very lightly with fine soil, and keep it moist. As soon as the young plants are fit to handle they may be planted into places where they are to remain, taking care to shade and water them until they are thoroughly established, or they may be put into small pots and planted out when larger. Petunias may be sown in March, April, or May, and also in August, September, and October.

Hoya.

The Hoya (Wax Plant) is not a very showy plant, but is exceedingly interesting, climbing by means of adventitious roots, which attach themselves, like ivy, to the surface with which they come in contact.

Hoya Carnosa is the most popular; it is commonly designated 'Wax Plant' or 'Honey Plant,' the first, from the wax-like appearance of the flowers, and the other from the drop of nectar which hangs from each flower. This variety will thrive in an ordinary greenhouse. It is a beautiful climber with thick fleshy leaves and beautiful clusters of pinkish-white flowers, which look as if frosted. H. Carnosa Variegata is a variety that can be grown out of doors against a brick wall in a warm aspect, but is seen to best advantage when grown in pots in a greenhouse.

The Hoyas require a well-drained soil, and do best if old lime and brick rubbish is mixed with it.

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The Vegetable Garden.

Operations for the Month.

The present is the dullest time of the year for seed-sowing, and only in light soils and warm situations need there be much done in this line. But we are fast approaching the busy season of spring, when lots of work fall in; therefore, if there is anything that can be done now at this quiet period to relieve the pressure which is bound to come in a few weeks' time, it should be taken in hand.

— Chiefly about Edgings. —

At this season there is usually much bare ground in the garden waiting for the spring cropping, and the opportunity is afforded of making any alterations that may be needed in the laying out of the various beds and walks. How best to lay out a new vegetable garden needs some consideration. No fancy work is required, simply straight lines in the beds and paths only as a rule, but there is no objection to curves occasionally, although they need a trifle more trouble afterwards. The main walks should be edged with some material. When a good edging is down there is no straightening needed of the margins of the beds, which often get awry in the absence of a permanent edging. Live edgings of dwarf parsley, thyme, sweet marjoram, or other suitable herbs look nice, and are useful for the kitchen, but they are objected to by some, because they want annual trimmings, replanting, and they also afford good harbour for slugs and other vermin. Garden tiles or slates look well, and bricks may be used, but very neat and serviceable edgings are made by using long lengths of serviceable battens, say, 3in. by 2in., firmly fastened to blocks fixed in the soil.

— How to Make Hotbeds. —

It is now time to see about the making up of hotbeds in which to raise early tomatoes, &c. Before starting hotbed work, one should be assured of a constant supply of suitable material for heating several months to come. To start a forcing bed now, and then by and by have to stop short for want of proper manure, would be foolish, because the plants raised would perish from the cold. Hotbeds are usually made from fresh stable manure, but they are also made from tan in a state of fermentation, also from fresh leaves, or from leaves and manure combined.

The small amateur gardener often dispenses with the hotbed, because he does not care to incur the necessary expense of the dung, but the money spent in purchasing it is by no means wasted, for after it has served the purpose of a hotbed, it is not much deteriorated for use as garden manure, which generally has to be purchased. For hotbed work wooden frames and glazed sashes are indispensable, and these are useful at any period of the year for the raising of seeds, the striking of cuttings, and the culture of plants generally.

The main thing in the making of a hotbed is the proper preparation of the manure. The quantity needed must, of course, depend on the size of the hotbed, and this again by the size of the frame to be placed upon it. For an ordinary sized single light frame measuring, say, 6 feet by 8, about four good loads of manure will be required; this should be fairly fresh from the stable. The time usually occupied in preparing the manure and making it into a bed is from seven to ten days. After the manure has lain in a heap for three or four days it should be

turned completely over, and every lump or patch which adheres together should be divided. In the absence of rain a good watering will be necessary. A second turning-over is generally necessary in three or four more days, and then the heap will be sweet enough for the making of the hotbed. The size of the hotbed must be governed by that of the frame which is to be placed upon it, but it should be at least a foot wider on either side than the frame. The height of the bed should be at least 3 ft.—4 ft. would be better—and the back of the bed should be six inches higher than the front. In making the bed the manure must be regularly placed in layers, well-shaken, and beaten down with the back of the fork. When the frame has been placed in position, in a day or two, a lot of steam will arise. To permit of this escaping the sash must be tilted a little, and, as soon as danger from overheating is past, the manure inside the frame should be covered with a few inches of rich soil.

In a few weeks' time the heat of the hotbed will commence to decline, but this must be prevented by applying linings or coatings of hot fermenting manure, laid on all round the bed to the whole of its height, and these linings may be about 20 in. thick. A second lining is often necessary, and then it will be necessary to cut away a portion of the old bed, but not to interfere with the body of the bed, and place fresh manure in its place. The position of a hotbed is of some importance. While it should be open to the sun, it should be sheltered from cold winds, which, by lowering the temperature, cause a waste of material.

GLOBE ARTICHOKE.

Plant out any seedlings large enough in rows about 6 feet apart.

CHINESE ARTICHOKE.

This vegetable was fully described in our May issue. If desired you may plant more tubers in rows 18 inches to 2 feet apart and 9 to 12 inches apart in the rows.

JERUSALEM ARTICHOKE.

Plant more tubers if required in rows 3 feet apart and 1 foot in the rows.

ASPARAGUS.

We went fully into the cultivation of Asparagus in our last issue, so 'tis sufficient to say that roots may still be planted.

SILVER BEET.

Sow a little seed in rows, and afterwards thin out the seedlings when they have attained a height of about 2 or 3 inches.

CABBAGE.

Sow late variety seed, and plant out cabbages that may be available.

CARROT.

More seed may be sown if needed. Sow in rows two feet apart; make several successive thinnings, until the young plants stand from 4 to 7 inches apart, according to the variety. Before sowing the soil should be deeply pulverised, and no manure should be used but which is thoroughly decomposed.

CRESS and MUSTARD.

Sow for succession about once a fortnight in light rich soil in drills half an inch deep and 8 inches apart, and sow thickly.

CUCUMBER.

In order to get early cucumbers it is advisable to sow a few seeds in upturned sods or paper pots in the hotbed, and transplanting without disturbing the roots as soon as the soil gets warm and the danger from frost is over.

EGG PLANT.

This excellent vegetable, called indifferently Egg Fruit, Bringal, and Aubergine is not grown in this to the extent it should. It is as hardy and as easy to grow as the Tomato, to which it is allied. This plant is a native of South America, and is susceptible to frosts, so it is too early to sow the seed in the open—the end of August or September will be early enough for that. If you have prepared a hotbed, however, it is a good plan to throw a few seeds in, and then you will have plants to put out as soon as the frosts have gone. Transplant in good rich soil in rows about three feet apart each way. Egg Plants appreciate a good root mulch, and should be kept well watered.

The purple variety is the kind usually

grown for the table. The fruit should be picked before it loses its brilliant hue.

The nicest way to cook the Egg Fruit is to boil it for 20 minutes, then to slice and fry it, adding pepper and salt.

HERBS.

The various kinds may still be lifted, divided, and replanted. We went fully into the subject of herbs in our last issue.

LEEK.

Plants from previous sowings that are large enough, say six inches high, may be planted out. Directions were given in our April issue.

LETTUCE.

If plants are available, say three or four inches high, plant out in good rich soil, which has been trenched and well manured, in rows a foot apart each way.

ONION (for Pickling).

Sow in shallow drills about a foot apart and do not cover deeply. When large enough transplant in rows a foot apart and about six inches apart in the rows, and apply liquid manure occasionally.

POTATOES.

Plant for late crop in rows 2 feet apart and 1 foot in the rows; we would advise planting in trenches 6 inches deep with a good coating of manure on top of the sets.

In cutting Potatoes, two eyes are sufficient for each set; they should be sprinkled with lime or wood ashes, and be allowed to dry in the shade a few days before planting.

RADISH.

Sow either in drills or broadcast, and when the plants are fit thin out to about two inches apart.

RAPE.

Make a small sowing of Broad-Leaf Essex Rape in the same manner as Mustard and Cress. It is a very wholesome vegetable; the leaves are used as Spinach, and also as a salad.

RHUBARB.

Plant seedlings in rows 3 feet apart and 2 feet in the rows. The crown should be 2 inches below the surface.

SEA KALE.

Sow the seed in rich soil, in drills a foot apart, and thin out to 8 inches in the rows. If you have plants available transplant in rows 3 feet apart and 18 inches in the rows, covering the crowns 2 inches.

PRICKLY SPINACH.

It is advisable to make another sowing in rows 1 foot apart. When the young plants have made four or six leaves, thin them out to from 9 to 12 inches apart. While growing, plenty of water is required to bring the crop to perfection, and the ground must be kept free from weeds. The leaves will be ready in from 80 to 100 days from sowing.

TOMATO.

Those who desire early Tomatoes, and have a hotbed at their disposal, should make a sowing of some good variety, such as Atlantic Prize, Earliana, or Large Early Red. By rearing the young plants at as early a date as possible, and by growing them on in pots, good sturdy plants should be ready to plant out when the weather becomes warmer—say, in September—and, if the season be favorable, ripe fruit should be ready before Christmas. As a rule, Tomatoes only become plentiful towards the end of summer, when they are of less value than early in the season. If no artificial heat be available, but only a glass frame, the sowing should be postponed for a month or so, and not until the end of next month or September should the seed be sown in the open.

TURNIP.

Sow more seed for succession.

Set the seed in light, rich soil, in shallow drills 15 inches apart; sow the seed thinly, and when they come up thin out to 8 to 10 inches in the rows.

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Rotation.

Plants belonging to the same natural order should not be allowed to succeed each other. Some crops are a good preparation for others, as, for instance, onions after celery.

Rotation assists in checking the devastations of insects and fungi to which a crop may be subject. Deep-rooted crops enrich the top soil for the benefit of shallow-rooted varieties which may follow.

Different crops require plant foods in varying proportions; hence a rotation is more economical of manure.

A definite system of rotation affords better opportunities for cleaning the ground.

Crops which occupy the ground for several years should be succeeded by others of shorter duration.

Rotations allow of a better distribution of labour during the year. Plants cultivated for their roots or bulbs should not be succeeded by others grown for a like purpose.

Rotations may extend from three to eight years, according to the size of the garden, the quality of the soil, the products required, the manures available, &c.

Examples of vegetables which may precede or succeed in rotation:—

Under cultivation—Beans

Preceding crop—Cabbage, brocoli, parsnips, carrots, potatoes

Succeeding crop—Cabbage tribe, leeks, turnips

Under cultivation—Beet

Preceding crop—Cabbage tribe, leeks, onions, celery, potatoes

Succeeding crop—Cabbages, cauliflowers, peas, beans

Under cultivation—Borecole

Preceding crop—Peas, beans, lettuce, potatoes

Succeeding crop—Carrots, beet, parsnips, onions, celery

Under cultivation—Brocoli

Preceding crop—Peas, broad beans, kidney beans

Succeeding crops—Late sowings of carrots, turnips, &c.

Under cultivation—Cabbages

Preceding crop—Peas, beans, onions, potatoes

Succeeding crop—Celery, onions, beet, carrots, potatoes

Under cultivation—Carrots

Preceding crop—Onions, cabbages, leeks, celery, potatoes

Succeeding crop—Cabbages, onions, peas, beans

Under cultivation—Celery

Preceding crop—Potatoes, cabbages, any early crops

Succeeding crop—Peas, beans, onions, leeks, potatoes

Under cultivation—Leeks

Preceding crop—Potatoes, cabbage, peas, beans

Succeeding crop—Peas, beans, carrots, parsnips, potatoes

Under cultivation—Onions

Preceding crop—Potatoes, cabbage tribe, beans, peas, celery

Succeeding crop—Cabbage tribe, peas, beans, potatoes

Under cultivation—Potatoes

Preceding crops—Cabbage tribe, beans, peas, onions, leeks

Succeeding crops—Peas, beans, cabbage tribe, celery

Brussels sprouts require the same rotation as borecole

Cauliflowers as cabbages

Kidney beans as peas

Parsnips as carrots

Peas as beans

Turnips as carrots

Dung as a Fertiliser.

Its intimate connection with the vegetable matter is the secret of the durability of farmyard manure. It is slowly severed, and during the long-continued processes of decomposition, the saline materials are disengaged, and offered to the rootlets of growing plants. We also know that the process is arrested at low temperature, and quickened in growing weather, so that the gradual emancipation of fertilising matter from dung is regulated to the requirements of vegetation, and proceeds most rapidly in

summer. The bulk of farmyard manure—i.e., its moisture and organic matter—is not valued per unit, as in the case of phosphoric acid, nitrogen, potash, lime, or magnesia. It is not priced out, but no one can doubt the value of bulk, and of moisture. The mechanical value of dung is probably incapable of being assessed, and depends a great deal upon the character of the soil and the season. If applied in a dry state, in dry weather, even dung may act injuriously; but ultimately it must be beneficial to the soil. Dung is not a special, but a general manure; and cannot therefore be used in order to restore a single ingredient which may be found deficient, or which is required in large quantity by a particular crop. It, however, is able to keep up and increase the fertility of the soil, especially when enriched by foods purchased, better than any special or fabricated fertiliser.—John Wrightson.

In the North Coast district of New South Wales, the French bean industry is profitable. The vegetables can be raised there earlier and later than in the districts close to Sydney. A ten-acre paddock at Tintenbar, near Lismore, returned this year to a number of Hindoos no less than £700.

† † †

There is an unusually heavy crop of winter strawberries this season in most of the strawberry-growing districts in Northern New South Wales, due, it is said, to the pleasant mild winter and recent warm rains. Splendid prices are being obtained for the berries, which are of excellent size and color.

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Practical Advice on Vegetable Gardening.

THE A.B.C. OF AUSTRALIAN VEGETABLE GARDENING.—We have to acknowledge the receipt of a book on the above subject, and after a careful and interested perusal of its one hundred odd pages, we have no hesitation in declaring it the best work of its kind that has come under our notice. This book essays to do only one thing, but it does that thoroughly: It teaches the A.B.C. of Australian vegetable growing, beginning with the preparation of the seed bed, and not disdaining to tell how the resultant vegetable should come to its ultimate end on the dinner table. It is a work well-nigh indispensable to amateur vegetable growers, and also contains the particulars of many innovations that will prove invaluable to the 'old hands' at the game. The writer, Mr. Herbert J. Rumsey, is a practical seedsman, and is continually in demand by agricultural societies as a judge at their shows in the farm produce, fruit, and vegetable sections. He is secretary of the N.S.W. Chamber of Agriculture, is a member of the council of the N.S.W. Association of Seedsmen and Nurserymen, and is otherwise actively identified with the producing interests. The book is written in three parts. In the first, under the head of 'How to Make a Vegetable Garden,' it goes fully, and yet brightly, into the particulars of choosing a site, draining, preparation of the land, manures and fertilisers, the growth of plants, vitality of seeds, preparation of hot and cold beds, the best way of watering the garden, benefits of rotation, cultivation of the soil and weed slaying, and winds up with a few hints on exhibiting at shows. The second part deals separately with every vegetable of use to the gardener, making the culture of most of them simple enough even for a child to undertake. Part III. contains particulars of what should be done in the garden during each month of the year, information for market gardeners in a list of the quantities of seed required in garden and field culture, a very interest-

ing table giving the time required from sowing or planting until garden crops are ready for use, a list of commercial fertilisers for the garden, and much other interesting and useful information.

The Value of Nitrate of Soda.

In a recent number the 'Revue de l'Horticulture Belge,' lays down rules for the use of nitrate of soda, which may prove useful to many of our readers. It definitely serves to promote earliness, increase the production, and give a better leaf growth and green appearance. Plants producing tubers, roots, bulbs, or fruits require from 8lb. to 16lb. of nitrate of soda per 120 square yards. This includes potatoes, carrots, radishes, chicory, onions, asparagus, tomatoes, peppers, &c. Leaf plants, cabbage, celery, spinach, lettuce, parsley, &c., require 12lb. to 24lb. per 120 square yards. Leguminous plants, like peas and beans, are not so much benefited, and require but 4lb. to 8lb. per 120 square yards. These quantities should of course not be applied all at once; 4lb. per 120 square yards, mixed in the soil before sowing, and the rest in 1lb. or 2lb. lots until the quantity is used. Do not sow when the ground is dry, or allow the nitrate to come in contact with wet foliage, for fear of burning.

Best Methods of Applying Stable Manure.

At a recent meeting of the Redhill branch of the S.A. Agricultural Bureau Mr. Wheaton read a paper on the above subject, the gist of which is appended:— 'For vegetable-growing, manure should be carted fresh from the stable and spread on the ground as thickly as could be ploughed in with a single-furrow plough. In the month of June this should be ploughed to a depth of 8in., scarified, and harrowed as often as was necessary to keep the weeds down, and planted the following year. For grass land he advocated putting the manure on

in the same way, at the rate of from 40 to 50 loads to the acre, spreading at once to prevent heating. Manure put on in this way would last for a long time, giving early grass for years. For cereal crops this manure should also be carted direct from the stable, and spread thinly on the land. This should then be left for grass that season, and when the land was fallowed and worked the weeds would be killed. Flower gardens were perhaps best treated with manure which had been left in a heap to rot, as this would save endless labor in keeping down weeds. Valuable manure was sometimes allowed to deteriorate in quality by being left a long time in a heap. The way to get the best out of it was to put it on the land fresh from the stable. Weeds would, of course, spring up, but only such growth as had been fed to the stock. Stubble was best treated by being trodden well with stock and then ploughed in. If it was necessary to burn stubble the land should be ploughed before the ashes were blown away; but, as a general rule, the more straw that was ploughed into the land the better. Chaff heaps could be distributed with a horse-rake, and so turned into good account.

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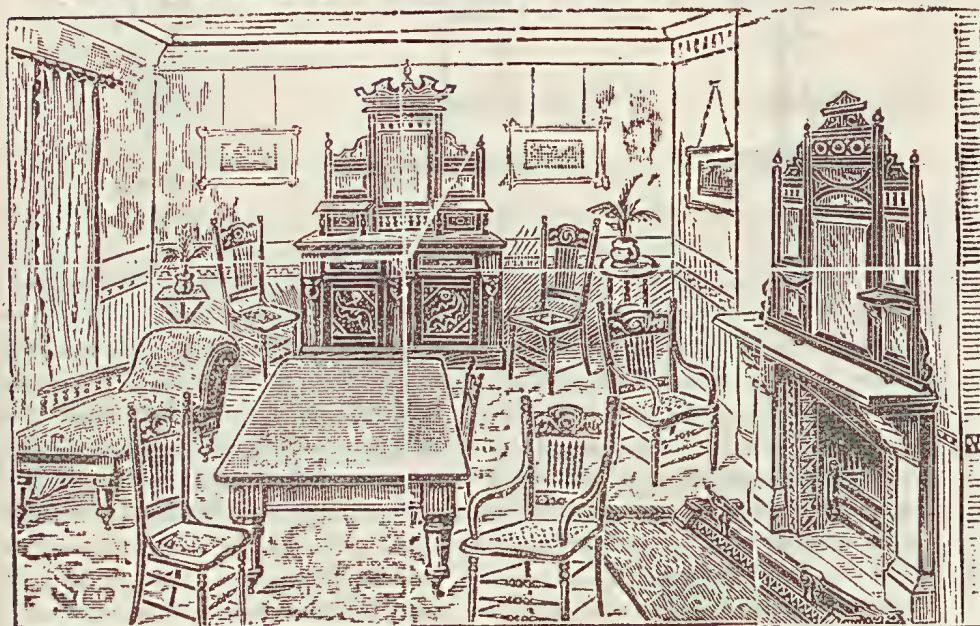
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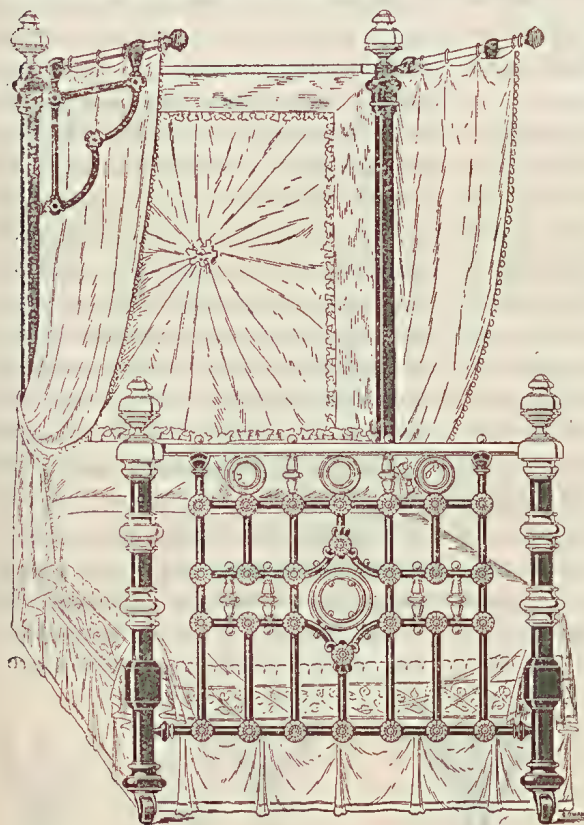


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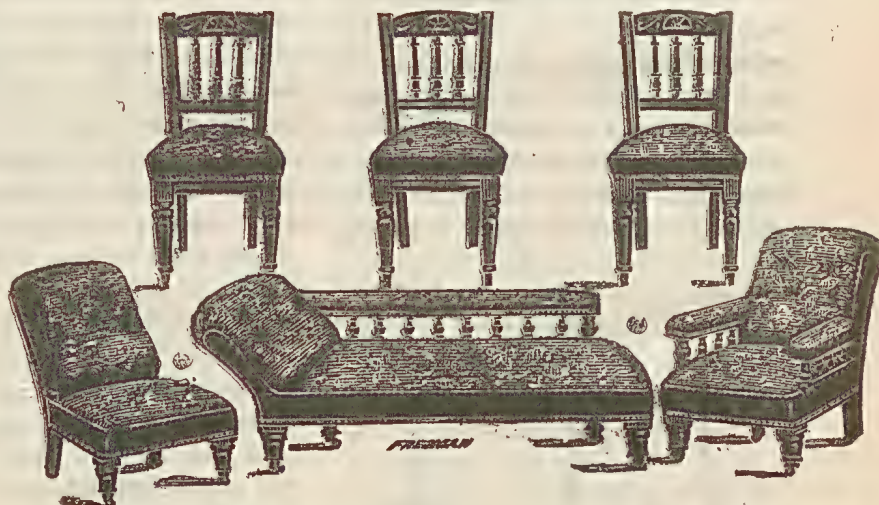
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The Orchard.

Pruning Fruit Trees.

Pruning is a means to an end. Under natural conditions trees are being constantly pruned. Every fall nature strips the trees of their leaves. This is their regular annual pruning. In addition to this there is a continual pruning of buds and branches. If every bud on the tree were allowed to develop the latter would become a regular bush pile. Those buds which are most favorably situated as regards light get most nourishment, while those less favorably situated become starved and drop off. The lower limbs of trees and those within the crown become weakened and die from lack of sunlight; then the wind, nature's pruning-knife, comes along and removes the dead branch. In this manner, trees are constantly ridding themselves of useless branches, and the pruning so effected is undoubtedly a benefit to the branches which remain, and to the general growth and improvement of the tree. Orchard trees, by virtue of selection, hybridisation, and cultivation, are in a highly specialised condition, and to be maintained so must receive special treatment.



Fig. 1

Fig. 2

Fig. 3



Fig. 4



Fig. 5



Fig. 6

In a sense the fruit tree is a machine for manufacturing fruit, and intelligent pruning is one of the means by which it can be made to manufacture the most fruit of the best quality in the shortest time, and to keep up the output for the longest possible period. A correct understanding, therefore, of this machine and all its working parts is necessary to its most successful manipulation.

It is as well to begin with the tree from the very start, which is at the time when it is transplanted from the nursery to the orchard, as a good beginning is half the battle. Assuming that a tree is about to be planted out, the first thing to do is to examine the roots carefully to ascertain how they fared in their removal from the nursery, as it is often found that the roots have been badly mutilated, especially in this country, where proper tree-lifters or diggers are seldom used. Before planting all roots which have been broken or damaged should be cut away, and all the young roots cut back to from within 6 to 8 inches of the tap root. All small roots should be removed, leaving only the larger ones, as by digging up a tree which has been planted for some time it will be found, except in very rare cases, that the small roots never throw out any young rootlets, but wither away and die, becoming a hiding-place, perhaps, for the white ants, which often in time, through such medium, take possession of the tree and cause its ultimate death. The roots should be cut with a sharp knife, and in such manner that when the tree

is planted the cut will face downward. By cutting this way, new roots, which will form or rather grow from the cut, will have a tendency to grow in the required direction — downward. The next step to consider is how the top of the tree shall be dealt with. This, of course, will depend largely on the age of the tree in question. If a two or three-year-old nursery tree, it may be advisable to leave either three or four short arms (as shown in figs. 1 and 2), as it is found that if the head is cut away, and only a straight trunk left, the top of the tree may not shoot, but will die, and the tree shoot from the root. This is often the case with the peach, but where a few shoots are left this danger is avoided. If a well-grown yearling tree I would prefer cutting it back to a single stem (Fig. 3). It must be borne in mind always that in moving a tree it loses the greater portion of its roots, and that in consequence the remaining roots are unable to sufficiently support or nourish the growth above ground, for which the whole root system was intended. We must therefore shorten the top in such a way as to re-establish the lost equilibrium, and the planter must bear in mind that it is always better to cut a newly-planted tree back rather severely than to leave it



Fig. 7



Fig. 8



Fig. 9



Fig. 10



Fig. 11



Fig. 12

with too much top, as by so doing it will recover more quickly, and in the end make a much better tree. It will be seen by a reference to the figures shown that although the young trees may be about the same size and shape when planted, yet, after the first pruning, they may present the shapes and forms illustrated.

After the first summer's growth, and before the second pruning, they will present about the appearance shown in Figs. 4, 5, and 6.

By adopting a system of allowing only one leader or main branch to grow from each of the shoots (Figs. 1 and 2), and three starting from different points around the trunk of Fig. 3, the tree will present a fairly good appearance at the time of the first winter's pruning (that is, the winter twelve months after the tree was planted in orchard form), which pruning will consist in cutting back severely, leaving each arm or branch about 15 inches in length. When the tree represented by Fig. 6 is pruned it will only have four arms left, as shown in Fig. 8; and Figs. 4 and 6 will only have three arms each left, as shown in Figs. 7 and 9. It may be considered by many that this is a rather drastic treatment of young trees, but it must be remembered that while the tree is young our object is to so train it as to produce a well-

balanced tree with good strong arms, and that in consequence, until the tree is three years old, our aim is to attain this, which is best accomplished by pruning for shape and strength and not for fruit. In performing the work it is often necessary to prune so as to spread the tree, as many trees are of very upright-growing habit, and therefore it is usually best to cut to an outside bud, cutting the branch diagonally across, as in this way it is more easily severed, and the risk of bruising the bark is reduced to a minimum.

During the second summer's growth the tree will require as much labor, or even more, spent upon it in directing and guiding its growth, as, by the removal of certain young shoots and the encouragement of others, the secondary arms can be started from almost any point; and where the trees are given this summer attention the task left for the pruner in the winter is very light. The second winter the trees would present an appearance similar to those shown in Figs. 10, 11, and 12; and after pruning operations should have the appearance of those shown in Figs. 13, 14, and 15 respectively. When Fig. 14 has four main arms and eight secondary branches, and Figs. 13 and 15 have each six secondary branches, the extreme points of which

are now from 24 to 28 in. from the trunk, it will be found that some of the branches are stronger than others, and, therefore, during the summer pruning the stronger growing branches should be kept in check and the weaker ones given more freedom when it will be found that the weaker ones will make up the ground they have lost.



Fig. 16.

By the end of the third year the trees will have put on a good strong growth, and will be well formed trees, as shown by Fig. 16, and will, when cut back as indicated, present a good strong foundation for the future tree, with sufficient fruiting wood to carry a crop sufficiently large for its age—that is, providing it is a tree that reaches puberty at this age. Many varieties of apples, pears, and other fruits will not arrive at the bearing stage until they are much older.

Tillage of Orchards.

The Horticultural Instructor (Mr. G. Quinn) writes the 'Journal of Agriculture of S.A.':—In connection with the tillage of orchards in the open country where the rainfall is only a trifle over 20 in., the soil should be broken up roughly in the early winter and allowed to remain in that condition until the beginning of spring. Then ploughing or digging should be done with a view to exposing as big a surface of the soil as possible to the action of the elements, and with a view to the absorption of all the rain which falls. Weeds will possibly grow on the roughly-ploughed ground, but not much notice need be taken of these, as they will be turned in before they have extracted sufficient moisture from the



Fig. 13



Fig. 14.



Fig. 15.



"The Briars," Residence of Mr. James Cowell, Medindie.

soil to become a serious detriment to the trees. In wetter localities, such as in our hilly districts, early ploughing is a very questionable practice, and our best orchardists have come to the conclusion that it is desirable to leave the ground fairly flat and growing a crop of grass or weeds until the early spring, so that the soil may be held in position. The land should be worked as soon as the teams can get on it, and sufficient moisture will then be retained to enable the trees to go through the summer successfully. It will possibly be news to many of our older orange growers that the proprietor of one of the largest orangeries in South Australia has recently procured a subsoiling plough, and intends to break up a fair proportion of the space between the rows with this instrument, as he is convinced that the continuous application of water year after year combined with a shallow tillage, that has been followed in the past, tends to bring the subsoil into a condition totally unsuited for the penetration of the roots of citrus or other trees. This departure from the ordinary method of cultivation will be watched with considerable interest, but if the work is judiciously done, and is combined

with other good cultural methods, no fear need be felt as to the result.

A Remedy for San Jose Scale.

The San Jose Scale is one of the worst pests that the orchardist has to combat. It is primarily a pest of orchard trees. The varieties that appear to suffer most from it are peaches, plums, apples, pears, and cherries. In America where the San Jose Scale does most damage, the orchardists have pinned their faith to the efficacy of the lime-sulphur wash. This is either painted on the trunks and limbs of the trees as soon as they have been pruned, or it is sprayed in such a way that every portion of the wood is coated. The ingredients used in making the lime-sulphur wash are stone-lime 15 lbs, flowers of sulphur 15 lbs, water 50 gallons. To mix them, heat 5 gallons of water in a copper. In another small vessel, mix the sulphur with enough hot water to make a thin paste. As soon as the water in the copper reaches the boiling point the sulphur paste should be added to it. When that has been done the lime should be added. As soon as it

commences to slake a little cold water should be poured into the copper, otherwise the mixture will boil over. When the lime has become slaked the mixture should be boiled for half hour longer, after which, the balance of the 50 gallons of cold water may be added. The wash should then be strained through a fine wire screen to remove the sediment, after which, it is ready to be sprayed on the trees. When it is desired to make larger or smaller quantities than 50 gallons, the same proportions of lime sulphur and water should be used. The lime-sulphur mixture may be regarded as one of the best winter sprays for fruit trees. Its efficacy as a scale destroyer has been thoroughly tested, in addition to which, it has a beneficial effect in cleansing the stems and limbs of the trees of old bark, moss, lichens, and other fungus growths.

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Another View of "The Briars."

Interesting Orchard Notes.

The orange season is low in full swing. There is a ready demand for good navels, and prices are firm.

The Queensland banana growers have decided to ask the Federal Government to raise the duty on Fijian bananas from 1s. to 2s. per cental. It is stated that unless a greater measure of protection is granted the Queensland industry will decline.

Any doubt that may have existed concerning the keeping qualities of grapes for the export trade has now vanished, for numerous experiments have almost invariably shown that, when carefully packed and stored, the fruit, after several months' storage, opens up in an excellent state of preservation.

Owing to the shortage in the local supplies, apples in the Adelaide markets are fetching twice the price they are in Victoria, which accounts for the large consignment Victorian dealers are sending to this State. Tasmanian growers are also benefiting by the shortage here by

forwarding quantities of the fruit for our consumption.

The apple crop in South Australia this season was a very light one, and, as the space ordered in the oversea vessels for export purposes had to be filled, much fruit which could have easily been disposed of in the local market was shipped away. Growers would have been better off on this occasion had they been able to retain their apples for the local market, which is now very firm.

Recently the South Australian Fruit-growers discussed the question of glutted fruit markets. Mr. Percival said that last year many thousands of bushels of plums were allowed to rot on the trees, on account of the unremunerative prices, while this year the jam makers would give almost any price for plums. There should surely be some means of preventing such waste; the surplus of one season should be carried over to the next. Generally speaking, at least once every three years, plums were in short supply, and prices high, so that there did not appear to be much risk in pulping the fruit. There seemed to be a lack of energy

on the part of those interested, and if this waste could not be prevented by private enterprise he would favor moving to ask the Government to take it up. Mr. Summers said the same applied to apricots.

Under the South Australian Fruit Cases Act the use of old kerosene tin cases is prohibited. The growers and packers state that this means to them a loss of £5,000. Mr. E. M. Taylor, a fruit inspector, says that it is high time that the traffic in these old boxes was stopped, many of them being so travel-stained and dirty as to be unfit to contain fruit intended for human food. Let us study the consumer, he continues, and give him his fruit in a clean, new case of standard size. This will slightly add to the growers' cost of packing, but the consumer is not likely to be affected, and the dealer can well afford to lose his much-cherished old kerosene case, as, be the fruit high or low in price, the middleman generally comes out on top. It is safe to say that all the larger growers in South Australia (concludes Mr. Taylor) will hail with pleasure the adoption of the new standard case.

BEE = CULTURE.

Advice to Beginners.

By Isaac Hopkins, Apiarian, in Bulletin
18 of N.Z. Department of Agriculture.

(Continued from last Issue).

V. WORKING BEES ON SHARES

It is by no means an uncommon thing in some parts of America for one man to engage to work another man's bees on shares and I have several times been called upon for advice on this matter in New Zealand. Though not more than two or three instances have come under my notice where it has been carried out in this colony, I have no doubt that it will become more common as bee-farming progresses. The following briefly outlined scheme covers the ground, and is the usual one adopted. The owner of the apiary or bee-farm provides all the bees and appliances in good condition; and on the site where they are to be worked. The other works the bees right through the season to the best advantage, and finally fixes them up for winter, leaving a winter supply of food in the hives. The crop of honey is equally divided, each paying half cost of putting it up for market, or if each half is put up in a different manner each pays for his own packages. Should the parties concerned arrange to market together, each pays half the expenses and the net returns are divided equally. All increase to be the property of the owner of the apiary, he, of course, finding the hives. The person working the apiary will then find it to his advantage to keep down increase, and work for honey only.

—:o:—

VI. HANDLING BEES.

Before any person can be successful with bees he or she must be able to handle them fearlessly. It is to be expected that the beginner will feel some timidity at first, but a little experience should enable him to get over this. A lesson or two from an experienced bee-keeper will help considerably. I cannot give credit to the oft-repeated statement that bees have a particular aversion to

some people. A person who thinks this of himself will feel nervous when near bees, and in that condition is likely to do something to irritate them, and unconsciously cause them to attack him. In my novitiate days, while I was learning how to handle them. I got a fair share of stings, and this I think is the experience with most people. Experience should bring confidence: if it does not within a reasonable time, I think it would be better for the person to drop out of bee-keeping.

—Bee-veil and Smoker.—

All beginners should protect themselves with a bee-veil, and a smoker is absolutely necessary, both to the beginner and to the old hand, if he wishes to get through his work rapidly, without unnecessarily killing bees. As for gloves, to me they are a nuisance, therefore I never wear them. There are specially oiled cotton mittens supplied now, that might be much better than gloves, as the ends of the fingers are free. Gauntlets alone, or elastic bands around the sleeves, where a person is not working with bare arms, are useful to prevent the bees crawling up the sleeves.

Smoke is the best and handiest bee-quieter known; a puff or two of pungent smoke will send the bees to their honey; it does not require much, and when they have filled themselves they are pretty docile, and can be handled if one is careful. The handiest fuel for the smoker is old dry sacking rolled up loosely.

—How to Manipulate a Hive.—

The smoker should be well alight and the bee veil fixed. Blow a few puffs of smoke into the entrance of the hive; then wait for half a minute or so. Next remove the cover without jarring the hive. It may be well to remark here that all movements about the hive should be quiet and deliberate, and there should be no jarring of any part of it, as nothing irritates the bees so much as jarring their hive. Lift one corner of the mat, and blow another puff or two down between the frames while removing the mat altogether. By this time the bees should be pretty quiet, but keep the smoker near by, and if they begin to 'boil' up over the frames, give them another puff or two of smoke. The frames may now be prized apart, and one of the side frames removed to make room to get at any of the others. When finished, the frames

can be replaced in their original position and the hive be closed—a screwdriver or an old chisel is a handy tool to have.

The best time to handle bees is on fine bright days when they are flying freely and gathering honey. The beginner should never interfere with them on dull gloomy days if it can be avoided.

Bee-Song.

I suck the dews of May and June

When blossom time is young;
All summer long you hear my tune

In spicy gardens sung;
September days I swim amid
The buckwheat's milky foam,
But never lost and never hid—
I know the bee-line home.

Sometimes where plum or peach begins.

To blush I love to stay;
Or pasture mint or thistle wins
My flight a mile away.

A thousand circles I describe,
Yet never where I roam

Forget my master and my tribe,
Nor miss the bee-line home.

Praise pinks and milkweeds to the
bee,

Wild rose and goldenrod,
Or call the fragrant basswood tree
The honey-maker's god

But banks of bloom could ne'er delay
The call that bids me come,
Nor tempt the hive-born heart astray
That knows the bee-line home.

There brim the crystal nectar-cup,
The pollen-cakes are clean,
There, soothed with tender music
sups

The brown-eyed castle queen.
What wonder that I longing seek
My walls of flowery comb
And quit the balmy posy's cheek
To wing the bee-line home?

Ye bees that walk on human feet,
You hurry everywhere,
But straight for you a shining street
Leads homeward through the air.
To find it in your evening flight,
Unlost amid the gloam,
Have you the light that burns at
night;
And shows the bee-line home?

—Theron Brown in 'Gleanings.'



NOTICE TO FRUIT AND PLANT DEALERS.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.
2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.
3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.
4. No plants other than those growing in pots having soil attached to their roots will be admitted.
5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.
6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.
7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.
8. No plants or portions thereof will be admitted from any State or country where phylloxera exists unless accompanied by a declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in the exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phylloxera exists or has existed in the plantation from which the plants originated.
9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.
10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace.

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ADELAIDE

The Ladies' Page

How to Keep Ferns Fresh.

Many women complain that they cannot keep the pretty little ferns purchasable for display in drawing-rooms in fancy pots, because they fade so quickly and die. This is because they are not managed properly. Twice a week they should be taken to the kitchen sink and the leaves well washed and stood under the tap, which should be allowed to drip water upon them until they are quite refreshed. After this the pots should be laid on their sides and allowed to drain. If treated in this way they will keep fresh and look pretty all the winter. House plants of any kind must not be watered too often in cold weather, or the soil will go 'sad' and the plants die.

Fancy Screens.

Until a screen has been put to the test of usefulness, it may be considered an unnecessary article of furniture, however 'fancy' it may be. But many of our female foregoers of taste and gentility lavished fancy stitching on an embroidered canvas, which, when framed in glass and mounted on a wooden tripod, protected their faces from the fierce glow of the open fires.

Screens of our own day are numerous in design, various construction, and adapted to every portion of the house. The Japanese screen is available in many places where one of heavier weight would be impossible to adjust easily. Some of these screens are made of silk satin, or cotton.

Their variations in colour and texture bring them within any colour scheme that may be planned for a room. To exclude a draft of air a screen of some weight is demanded, and a wooden frame that stands upon the floor with the sides covered with burlap is satisfactory.

An invalid's screen of a character altogether praiseworthy has been devised with pockets fastened to the inside of the

frame, in which letters, photographs, or memoranda may be tucked away. The idea is one adaptable in many homes.

Gold Fish Aquarium.

The number of fish to be placed in an aquarium is a matter of great importance and one that is generally over-looked to the detriment of the fish; two fish, from two and one-half inches to three inches long, with two snails and one tadpole, will be found ample for every five gallons of water and, no matter how much one may be tempted to have more, this proportion should be strictly adhered to; overstocking is one of the causes, we might say the principal cause, of all failures in keeping the aquarium and its inmates in good healthy condition. If the fish persist in coming to the surface to breathe it is also a sign that there are too many fish in the aquarium, especially so if it is properly stocked with plants, of which it is not possible to get too many so long as the movements of the fish are not retarded by them.

—Food Supply—

Goldfish feed naturally on insects, worms, larvæ and algæ that are always abundantly found in fresh water; in the aquarium, however, artificial food has to be resorted to, and the best is, without a doubt, the rice wafer sold by all dealers in in aquaria supplies. For each fish three inches long, a piece of the rice wafer, from one-half to three-quarter inches square, should be given once a day; other fish in proportion to size; care being taken that only enough be given that the fish can consume, there should be none left to ferment. There is also other prepared goldfish food sold by dealers which makes an agreeable change of diet for the fish and which can be fed at intervals. The fish require more food in the summer, when they are more active, than in the Winter. The above diet of rice wafer should be varied by supplying them with some of their natural food once a week; if this is not possible they can be given a small pellet of raw finely chopped beef once a week, being careful that each fish gets only one pellet.

—How to Clean the Container—

When necessary to clean the aquarium the fish should be removed with a dip net and placed in another vessel containing water of about the same temperature as that to which they have been accustomed. Then all stones, sand, plants, and the glass of the aquarium should be thoroughly cleansed before refilling with fresh water, again being careful that the temperature of the water is as near to that which the fish have been used to as possible; a sudden change of temperature is very bad for them, for they are subject to diseases from colds as well as the human family. If the aquarium is a large one which cannot be emptied as easily as one of much lighter weight, a small hose will be found very useful, used as a syphon, to draw off all filth, sediment and offal that may collect on the bottom of the aquarium; the end of the hose can be guided to any part and the filth drawn off by suction. One of the main essentials to success is strict cleanliness.

—Fungus Disease of Goldfish,—

Goldfish kept in an aquarium are subject to a fungus disease which, unless checked, will cause death. It commences as a small white spot on the fins, head or body of the fish, rapidly extending until it covers the gills, when the fish is suffocated. As soon as the fungus is noted the fish should be removed and placed in water in which a tablespoonful of table salt has been dissolved for every two gallons of water. Leave the fish in this water for several minutes, or until it shows signs of distress, then remove it to a vessel containing pure water, in which it should be allowed to remain until entirely recovered before it is returned to the aquarium. If any of the fish be attacked by this fungus, all should be removed and given the above treatment, while the aquarium, stones, sand and plants should be thoroughly cleaned with a salt water solution of greater strength, as they will not be injured by it. This disease kills great numbers of fish and should have attention as soon as noticed.

—Florists' Exchange.

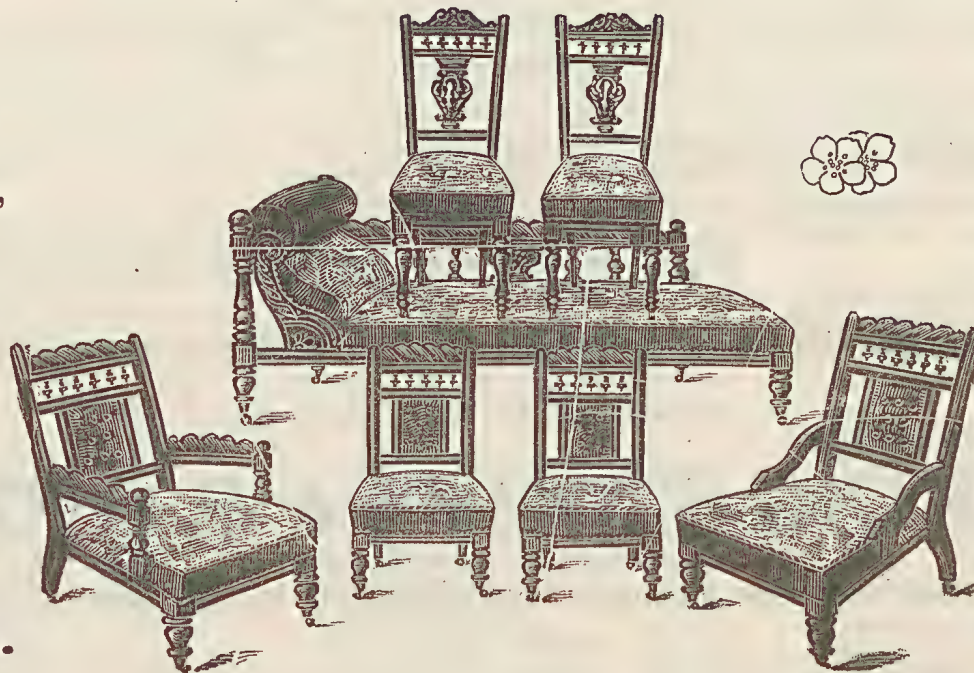
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NATURE STUDIES.

Rats.

A rat looks very much like a big mouse, but he is much bigger and stronger. He is not so timid as a mouse, and will sit up on his hind legs and fight even a cat.

He has strong teeth, and can gnaw very hard things, such as a wooden floor. Rats have been known to eat a hole out of a leaden water pipe so as to get at the water, which they could hear flowing through it.

A rat's claws are very strong and sharp, and his hind claws are so made that he can turn them round. In this way he can climb head first down a rough wall, for he takes hold firmly by his hind claws, and so prevents himself from falling.

There are many kinds of rats; but one of the most common is the brown rat, which lives in barns and corn ricks. He does much damage to the corn, and so the farmer does all he can to kill him.

Cats will kill mice, but there are not many cats that will even try to kill rats. There was once a cat that would kill rats. She lived in a house where there were many of them, and killed some every day.

At last the rats got tired of being hunted by the cat. So they left the house and took up their abode in some stables.

But the cat followed them there. Then the rats turned upon the cat, and bit her so badly that she died.

Some rats live in the drains, where they eat all kinds of rubbish. Others live on board ships, and it is said that when a ship becomes leaky and unsafe all the rats leave it.

Rats are sometimes very clever at getting food which has been put out of their way.

A farmer used to hang up in his house a bottle with oil in it. Time after time he found the bottle empty.

At last he watched. Then he saw a rat climb down the string by which the bottle was hanging, and dip its tail into the bottle. When the rat pulled his tail out it was covered with oil, which he licked off. By doing this many times the

cunning rat got all the oil.

Rats are clean in their ways, and after eating food they may be seen carefully washing their faces with their fore-paws.

Though they are so wild and fierce they can easily be tamed, and soon grow to be very fond of their masters.

—The 'Second Reader.'

Lily's Fright.

Lily sat under the big, square table in the kitchen, drawing pictures. She did not need any paper or pencil, for she had a nice piece of white chalk, and the floor canvas was dark brown.

A long time, perhaps a good half-hour, the tiny artist worked away, sketching houses, cats, boats and trees, and girls with little sunshades held up straight over their heads. At last she rubbed them out with Dolly Dimple's old dress, and drew a big circle. In it she made a pair of great, staring eyes, a short, fat nose and a wide mouth, with three teeth showing. It looked as if a Jack-o Lantern had been sitting for its portrait.

For two or three minutes Lily looked soberly at her work; then she scowled at it. Then, suddenly dropping her chalk she came out in a hurry from under the table, her own eyes very big and round, and ran and hid her face in her mother's lap.

'Why, Lily, what's the matter, dear?'

Lily did not answer.

'She saw a mouse,' said Frank, who was making a 'figure-four' trap with some sticks and a board.

Lily shook her head.

'Lily isn't afraid of mice,' said her mother.

'Little Miss Muffit sat on a tuffit,

Eating curds and whey;

There came a great spider,

And sat down beside her,

And frightened Miss Muffit away.'

sang Charlie, teasingly, looking up from his lesson.

Lily shook her curls harder.

'A wolf or what?' asked Frank.

'Tell us what frightened you, Lily. Don't be foolish, dear.' Mother was as puzzled as the boys.

Lily raised her head and pointed to the picture under the table.

This happened a good many years ago, and Lily paints beautiful pictures now;

but her brothers have never forgotten how she frightened herself with the drawing that she made under the kitchen table.

—'Scraps.'

Which?

The Violet, Pansy, and Mignonette
Indulged in a friendly little bet
As to which should stand at the Lily's
side

's maid of honour at Eastertide.

The Lily looked down on the lively
scene

With the gracious dignity of a Queen,
And smiled across, with her calm repose,
In the blushing face of the conscious
Rose.

The Rose was out of the race, you see,
Because of her claim to royalty.

'In point of colour I am the choice,'
The violet said, in her sweetest voice;
'And in delicate perfume you'll con-
cede

I naturally take the lead.'

'Pooh, pooh!' said the Pansy; look at
me,

If wealth of colour you would see.'

'Such modesty!' sneered the Mignonette,
'I wonder who gave you that epithet!
I may be old-fashioned and lacking in
sheen,

But I'm sweet, and I'll stand by the side
of the Queen.'

The Lily bent slowly her dainty white
head;

'You all do me honour,' she gracefully
said,

'And, really, the claim of each one is so
just,

'Twould be hard to settle, if settle I
must;

But I think for the church I'm destined
to be,

So the final decision does not rest with
me.'

When Easter morn came—as the Lily
foretold—

With a sheaf of her sisters she entered
the fold,

And there, by her side, in a cluster were
set

The Violet, Pansy, and Mignonette,

'Nice-looking dog. What did you pay
for him?'

'I got him on tick.'

'Ah, a watch-dog, eh!'



WIT AND HUMOR.

'It isn't till a Miss gets married that we find out how much we have Mr.'

'Yes, and then we wonder if she also Mrs. us.'

Mamma: 'Why, Johnny, what's the matter?'

Johnny: 'M-my new shoes hurt my f-feet.'

Mamma: 'No wonder, dear; you have them on the wrong feet.'

Johnny: 'W-well, I c-can't help it. I ain't g-got no other f-feet! Boo-hoo-oo!'

'Be mine, dearest; be mine!' he whispered, as he knelt on the carpet at her feet.

Then, as he remembered that this would bag his trousers, he sat down beside her instead, and took her hand in his.

'Oh, George,' she answered, while his heart throbs sounded through his new silk vest. 'Oh, George, I cannot, I cannot!'

'You will think better of this!' he snarled. 'Heartless girl, you will regret your words! What stands in the path of our bliss?'

'I cannot be yours, George,' she said tearfully. 'I cannot even be a sister to you; but I'm going to be a mother to you instead. You see, your father——'

But George had vanished into the stillness of the night.

The special train had just come from London with all the available landscape gardeners who had not been retained by the L.C.C., and the millionaire was discussing with them the plans for his new grounds.

'On these terraces,' he said, brushing aside his tie because it hid a diamond stud, 'we'll have five thousand weeping willows.'

'Have you any preference as to how they shall be arranged?' asked the head gardener.

'There is only one way in which to plant weeping willows,' said the merry plutocrat, and that is in tiers.'

Three gardeners fainted away, a chestnut tree burst into tears, and a little dog hid its head in a drain.

The blackbird's eggs fell through the boy's fingers, and tried to make a custard on the ground.

Hark! What sound was that, breaking the stillness of the gloaming?

'Percy, dear, you mustn't!'

'Oh, Evelyn, just one!'

They were the voices of his sister and her sweetheart, and the little boy spent a pleasant half-hour watching them through

the bushes.

At supper that night the boy said abruptly, 'Evelyn, I heard you kiss Percy in the garden.'

'What do you mean, you rude child?' asked the young lady indignantly.

'Oh, you can't deny it! It was just like a cow pulling its hoof out of the mud.'

Who was it that kicked that boy's shins under the table?

'Father,' said the small edition of the gentleman addressed, 'you said I must always think before I ask you a question.'

'I did,' said father, wearily.

'Baby has no hair on its head,' resumed the little boy, 'but nurse says it will grow.'

'It will.'

'Sister dropped a match on her flannelette blouse, and burned off all the fluff.'

'Just like your sister.'

'The teacher told me not to clean my slate with the sleeve of my jacket, because it rubbed the nap off the cloth.'

'What are these facts leading up to?' sighed the parent.

'Well, you see, dad, I've been thinking. Now I want to know whether you burned the hair off your head, or did you rub it off on your slate, or is it still to grow?'

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thought of the possible bad effect of the cold water on an overheated system.

Horses require water at frequent intervals. To let an animal drink at 7 a.m. and then work it till noon without any refreshment, is cruelty. If those in charge of horses would only pause and think of the effect of a drink on themselves, perhaps they would have more consideration for the patient horses. The man feels thirsty after following the harrow in the dust for an hour, and quenches his thirst from the water-bag. It is not long however, before he again feels he must have a refresher. Why can he not consider that the same causes produce the same effect on his horses? There would be little time lost if they were allowed a drink every two hours, and they would work all the better for it.

It has been found that a horse drinks less water in a given time if he has continual access to it in the stable than when watered at long intervals. A horse should always be allowed to quench his thirst on coming from work, even if he is hot. A very general opinion exists that it is injurious to water horses when in such a state of heat, and they are therefore, in many instances, not watered until they have somewhat cooled down; this opinion is wrong, as it does not hurt horses to drink cold water directly they return from work. It is, however, hurtful to let a horse drink after he is partly cooled down, and this practice is very liable to cause a chill to the system. It may often be noticed that horses that have come in hot, and are not watered directly, but some time after wards commence to shiver.

after drinking, a bucketful of water, whereas, if a horse is allowed to drink before the blood has cooled down, he will not do so. The explanation of this, no doubt, is as follows:—Cold water, on entering the body, absorbs a certain amount of heat from the system, in order to bring its temperature up to the internal temperature of the animal drinking it. In the case of a horse in a hot state, the loss of heat is not felt, as there is sufficient heat to spare, whereas, in a horse which has already partly cooled down, and whose system has begun to flag, the sudden further loss of heat occasioned by the cold water entering the body, and absorbing heat causes the system to become chilled.

Now, as to feeding horses. The animal's constitution must be studied. One horse will have a good appetite, eat up all his dinner, and be ready for the afternoon's work in a reasonable time, whilst a horse with a poor appetite will take more time, and pick out the best parts. This is no fault of the horse. He wants some appetising medicine. Give him something less in quantity but better in quality—a little bran or pollard, for instance. This will enable the weaker horse to keep up to his work. Old horses must have more attention than young ones in the matter of food. It is unreasonable to expect old horses to do the same amount of work as younger ones on the same kind and amount of food. Remember that horses have small stomachs, so they should not be fed too much at one time. If you allow a horse to gorge himself, he will get indigestion.

For GOODNESS Sake Use

VICEROY TEA.

Hay should not be fed in the middle of the day. The heaviest feed should be given at night, when the animals will have plenty of time to digest it. Some horses require more hay or chaff than others. The amount of food a horse requires varies with the speed at which he is worked. Suppose a horse to walk 12½ miles, he will do the distance comfortably on 19½ lb. of hay, but if you trot him over the same distance, even 24 lb. of hay is insufficient. Scientific men have shown that a horse weighing 1,000 lb., and doing only moderate work, requires but 11½ lb. of digestible food daily; but, with average work, he requires 13½ lb.; and, when heavy work is being performed, 16½ lb. If, in each case, the animal gets 10 lb. of hay, he would require, in addition, 11½ lb. in an equal mixture of maize and oats in the first instance, 15 lb. in the second, and 20 lb. in the third. No draught horse should be allowed more than 12 lb. of hay or chaff in a day. Farm working horses, in good seasons, consume too much of this coarse fodder. If the hard-working horse were fed on hay alone, he would require 40 lb., but such a supply would be fatal to good results, and absurd to supply.

An excellent feed for a horse doing moderate work—a horse weighing 1,000 lb.—is a mixture of 10 lb. of hay with 11½ lb. of oats, or with 10½ lb. of maize and oats in equal parts, or 8 lb. of oats, and 4 lb. of bran. Barley may be substituted for oats.

Finally, never leave your horses, after they return in the evening to the stable, without giving them a good rubbing. An

old saying is, that a good rub down with brush and curry-comb is as good as half a feed. Clean them from nose to tail, and dry them off with a cloth. Look to any sores they may have, and apply liniment or ointment to them. In raw, cold weather, when your horses have to stand for any time in the wet, cover their loins with a cloth. It will prevent the risk of their catching cold. Treat your horse, in fact, as you would treat yourself. Feed him well, treat him kindly, don't overwork him, give him comfortable quarters, and you will not often require the services of a veterinary surgeon. It is well for all horse-owners to study some book on veterinary science, in order, at least, to be able to recognise the more apparent ailments of the animal, and those which will yield to the very simplest treatment. In any case of difficulty or doubt, consult a surgeon as early as possible.

'Queensland Agricultural Journal.'

Artichokes as Food for Pigs.

This is a flowering perennial plant which has in the past been overlooked as a valuable food for pigs. It grows from 6 to 9 feet high; and when in bloom, seen from a distance, the crops look like one of miniature sunflowers.

The stalks are frequently used for feeding sheep or conversion into silage, and the tubers afford a palatable and succulent food for pigs. The plant is very persistent in growth, and, if raised in suitable soil, it is difficult of eradication.

Enough tubers, as a rule, are left each year to continue the crop; hence it is wise to set apart a permanent paddock for it, or the odd corners of a farm or waste places of little value for other crops may be used for growing artichokes.

The plant is extremely hardy; it resists frost and drought. Whilst the best crops are raised on good mellow loams, yet profitable yields are secured on stiff clay lands, light sandy or gravelly soils.

The land is best suited where the drainage is good. In fact, any soil suitable for potatoes will answer for artichokes. It is a crop that requires little attention when it is established.

The soil needs thorough cultivation. It should be deeply ploughed about May or June. During the winter it may be harrowed occasionally, lightly reploughed about September, and well manured as if for sweet potatoes. The tubers are then planted by dropping them into furrows 3 feet apart, with a space of 2 feet between each tuber. If the sets are small, plant whole, while large ones may be cut. Cover by turning a furrow over them. About 4 cwt. of tubers will plant an acre.

The crop matures in five months. Should rain fall immediately after planting, the harrow may be run over the land to fine the surface. This should be repeated when the plants are about 4 inches high. This checks evaporation, destroys weeds, and will not injure the crop. Later on the cultivator should be kept moving between the rows about once a month.

When the crop flowers and the tops

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DELICIOUS AROMA.

droop and die, about April or May, it is ready for harvesting. The average yield will be from 7 to 8 tons per acre.

Two varieties have been tested here, and gave the following results:—

Jerusalem White 9 tons 1 cwt, per acre.
Jerusalem Pink 6 „, 16

For feeding pigs it is best to turn them into the crop, to root out the tubers. It must be remembered that, where it is desired to continue the crop, the pigs should be removed before all the tubers are eaten.

Few foods are more relished by pigs. The tuber in the raw state is very nutritious, more especially for pregnant sows, and also sows reduced in weight and condition after suckling and weaning big litters.

This class of food acts as a diuretic, or promotes a healthy action of the kidneys in secreting urine; it relieves constipation and stimulates liver functions. One acre will support twenty sows from four to six months.

Young, growing pigs evidence considerable growth on being fed with them for a short period. The exercise obtained in harvesting or rooting up the tubers has a beneficial influence. It is especially notable that artichokes are very digestible.

The outcome of a number of tests go to show that for fattening purposes these tubers must be given with grain, and have a similar result to feeding with ordinary potatoes.

325 lb. wheat, fed with 820 lb. artichokes, gave 100 lb. increase.

—'Agricultural Journal' of N.S.W

Miscellaneous Items.

New York City, with its boroughs, has a horse population estimated at 300,000 and it is estimated that 50,000 die every year.

* * * * *

It is stated that a dozen fowls per acre will yield sufficient dung to fertilise the acre enough for most crops, especially if the poultry dung be strengthened with a little phosphate.

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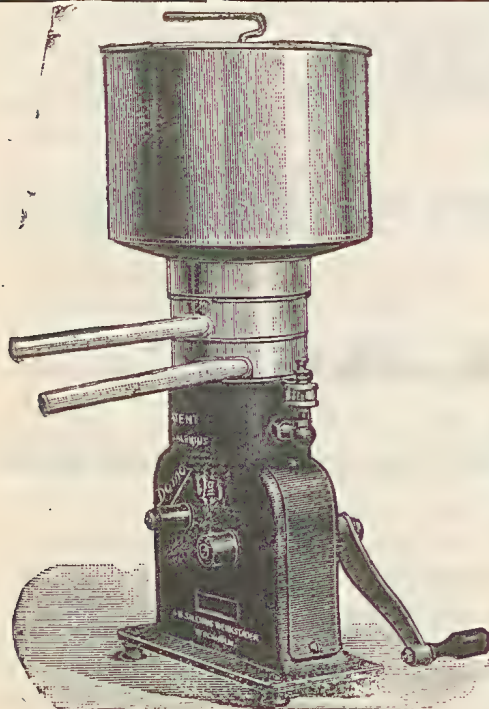
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| £550—Grey Street, City, off Franklin Street, 5 Houses, 3 rooms, Rents 26/ weekly. | £475—New House, 5 rooms, all stone but back wall, which is brick, bath, cellar, &c. | £540—Parkside, Staunch Villa, 6 rooms, bath, cellar, 80 x 120 lawn. |
| £1,400—Splendid Investment, City, 3 Two-storey Residences, large rooms, balcony, pays 14 per cent. on £500 cash required, after paying interest at 4½ per cent. on £900, and Rates, &c. | £3,000—Charming City Residence for Retired Gentleman, South Terrace, City. | £825—North Unley, close 1d. tram section; 1 1-16th acre land, Sound House, 7 rooms, with pantry, large enclosure latticed in, provided with sink, lavatory, wash-stand, copper, &c., Stable, Garden. Very cheap. |
| £425—Hyde Park, 18/ per week Rents 2 new Houses, each 3 rooms, Bargain. | £1,150—Goodwood Road, tram frontage, 2½ acres, oranges, and all sorts of stone fruits, House, 8 rooms, stone, balcony, stables, hay-loft. | £285—Goodwood Park, by Hyde Park Road, Detached House, 4 rooms, Let at 11/ weekly. |
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THE DAIRY.

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J. S. McFadzean, Dairy Supervisor.

Every dairy farmer should strive to obtain as much remuneration from his herd as his circumstances will permit. To materially increase the profits from his business without making a corresponding expansion in the cost of production should be his daily thought; for such an increasing of the returns cannot but be satisfactory. When, therefore, a dairy farmer is so located that he is within reasonable distance of a constant demand for fresh milk at a payable price, he should endeavor to get a due share of the trade available. Occasionally, cases may be met with where special circumstances preclude the possibility of making this line of business fit in with some other work on a farm; and in such instances the opportunity must be let pass. As a

general thing, however, it must be conceded that, should a dairy farmer continue to separate his milk for cream-selling or butter-making, when he could as easily take part in the wholesale milk supply business, he is not taking full advantage of his opportunities.

A gallon of standard milk is worth from 3d. to 4½d., according to the season, if separated or sold on its butter-fat content. But that same quantity of milk is worth from 6½d. to 8d., and even much more, in a period of scarcity, if sold wholesale as fresh milk for household consumption. Of course, the cost of handling and marketing the latter is somewhat greater, and the principal features which tend to vary the cost of producing these two lines of dairy produce may here be briefly commented on. The milk seller must cool his milk carefully and deliver it daily, whereas the cream or butter seller has only to get his produce to the railway station twice in each week. The former is also not able to improve his land as cheaply by manuring as is the man who utilizes his skim milk in the raising of pigs or

calves. Allowing, however, for these disadvantages there still remain several factors, other than the difference in actual cash returns, which are almost sure to obtrude themselves speedily under the milk suppliers notice to his ultimate profit. More often than not the necessity for reaching the railway station with the milk at a fixed hour daily will introduce a regularity into the daily work of the farm which it would otherwise be difficult to obtain; and the result is beneficial in many ways. Special attention also must be given to improving the standard of the herd in the way of persistency and consistency of milking; for cows that will give a regular supply of milk over a long period are particularly valuable for this work. If the supply of milk is to be sustained with a regularity that will be satisfactory to both buyer and seller, it is further necessary that the cultivation methods of the farm be systematic; while the area cultivated must be sufficiently extensive to insure a supply of succulent fodder for the milkers throughout the whole year. With these items provided for, the wholesale milk supply business

can be made much the more profitable of the two branches of dairying.

In the Shire of Lilydale one of those who have changed from butter-making to this wholesale milk supply business is Mr. G. L. Fiedler, of Dorset-road, Croydon. This farm of 120 acres has been rented by Mr. Fiedler for several years past, and on it he now keeps 29 head of milking cows and a few young stock. Twenty-three acres are cultivated for oats, maize, peas, rye, and a little market garden produce. A fairly regular supply of green feed is obtained throughout the year by monthly sowings of such of the above crops as are suitable to the season. Having previously been more extensively engaged in market garden work on this place before his dairying operations developed to their present extent, Mr. Fiedler has a good knowledge of the cultivation necessary to sustain the requisite fodder supply. This, in some measure, counterbalances the draw-back which must necessarily arise from the absence of a silo on the farm.

When the first inspection of dairy farms in the Lilydale Shire under the Dairy Supervision Act was made in 1906 this dairyman's name was mentioned among those whose stock were giving the best returns in cream or butter. At the close of that year the seventeen cows on this farm were making 114 lbs. of butter per week. Since then, progressive methods have been suggested and adopted, the herd has been increased to 29 head as stated, and during the year just past the herd has given an approximate average of 540 gallons of milk per cow. In February of the present year 23 cows (including heifers) were giving 50 gallons daily. A recent test of the herd over 24 hours showed 5 per cent. butter fat on the total milk yield, which works out at about 8½ lbs. of butter per cow, or a good advancement on the 1906 production. However, the sale of the produce from this herd, even at the high butter-fat average stated, is as a direct return, far more profitable when disposed of as fresh milk than it would be if separated for the manufacture of butter.

The heifer calves from the best cows are raised each year, and any surplus

stock find a ready local sale. All the cows are well cared for, being rugged in cold weather, and stall fed at each milking. At the date of inspection they were being given chaffed hay and maize with about 4 lbs. of bran each daily. They are a useful looking lot of cattle, with extra good udder and milk-vein development, fairly low set, well bodied, bright looking, and very quiet—typical dairy stock throughout. In January and February of 1903, Mr. Fiedler's six cows made 75 lbs. of butter per week between them. By breeding these cows to pure Jersey bulls, his present profitable herd was built up.

Another dairy farm in the same district, which, though on a still smaller scale, presents several points of interest, is that of Mr. R. A. Cummings, Kilsyth. This is a 40-acre block near the Canterbury-road, Dandenong Creek at Bayswater to the foot of Mount Dandenong; and which is still largely in its unimproved state. There was a thick bush growth of timber, scrub, and wire grass on this land when it was acquired by its present owner some fifteen years ago. It is a cold heavy grey soil over rotten stone with a clay subsoil.

The natural vegetation here is of no use for milk production, and the low price of the land was the only inducement it then offered to settlement. The last 5 acres of the block was brought under cultivation about eighteen months ago; and a profitable farm is now the result of that fifteen years' work.

As the land was gradually cleared, fruit trees were planted in the first few acres, and vegetables were grown for market. The taking up of dairying work was the outcome of the necessity for providing humus to improve the land. The ground was found to improve rapidly, both in texture and productiveness, by the use of farm yard manure. The distance from the city placed the obtaining of the necessary quantity of stable manure beyond consideration. The idea of keeping dairy cows, and thus getting a double return from them by using the manure to improve the soil, was therefore put into practice.

The purchase of a cow for the pro-

duction of the household milk and butter is one of the most important events in the early history of each small farm. Very few settlers, however, make full use of their farm animals, for they allow the bulk of the farm-yard manure to waste. A very conservative estimate of this product suggests that fully £2 worth of manure per cow is allowed to waste on many farms each year through want of thought. The careful use of this farm manure has been a great aid to the success of many small farms in this district; but in the majority of cases much of it is allowed to accumulate on camping grounds, and adjacent to slip-rails and such places to leach and wash away with every rainfall, instead of being carefully gathered and used for the improvement of the soil.

Housing of the cows at night was practiced on Mr. Cummings' farm from the first; and the manure and shed drainage were carefully collected to be used as required. As the land was gradually cleared and brought under cultivation, more fodder and surplus market vegetables were produced; and the stock were increased accordingly and handled on the profitable lines that had been followed from the start. Mrs. Cummings had charge of the dairy work, and the accounts were kept methodically. The direct monetary result of the dairying was thus always under observation. It was consistently satisfactory, for the stock were well fed. This is another item in farm management that is too often overlooked by the small settler. Frequently, more cows are kept than can be supplied with sufficient food from the area cultivated. The result is ill-fed cows and poor returns. One well-fed cow will give a better return than will be obtained from three others that are kept on short rations; and it is much easier to milk and look after one cow than three. Usually a settler's first cow is well cared for, and she gives a good return for her keep. Too often, however, the stock are increased without allowing for a corresponding increase in the available fodder; and the result is that all are poorly fed and none are profitable. On the farm referred to, however, every cow is as well fed and

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well cared for as the first was; and the profits from them have been equally sustained.

The 40 acres are now subdivided into nine paddocks, and ten cows are kept. As the land came more under cultivation and the dairying work extended, the growing of fruit and vegetables for market was reduced. The bulk of the fruit trees have now been gradually removed to make room for fodder crops. In the rotation of cropping, two or more paddocks are usually down in grass. These are top dressed with 2 cwt. of superphosphate per acre per year till again broken up. Besides the farm manure, bone dust is also used in cultivation, and the land kept in good heart. Oats, maize, peas, and turnips are the principal crops grown.

The cows are purchased stock, of fairly even medium size, but of mixed breeding. From July, 1907, to June, 1908 inclusive, the returns in cream from the ten cows amounted to £115 9s. 10d.—an average of £11 11s. per cow. The milk is now being sent daily to one of the Melbourne suburbs, the yield being 20

gallons per day.

Water has been found at various depths over most of this district, but the quality varies. In different parts of his farm, Mr Cummings has obtained both fresh and brackish supplies, more than sufficient for stock purposes.

On a 10-acre block in this vicinity the owner, Mr. Helwig, after sinking 30 feet came on a fine supply of good water that rose 9 feet in the well. He erected a windmill and is using the water for irrigation. By leasing a 50-acre block for grazing, and increasing his cows from two to eight head, he is now also assisting in the city milk trade. From the several small farms that are in a similar state of dairy-farm development here, it is evident that the value of the dairy cow on small holdings is gradually becoming recognised.

—Victorian "Journal of Agriculture."

There is a big drain on the phosphates of the land when young stock and milking cattle are used to graze down the pasture and this has to be made good, otherwise the grasses will run out.

One of the most important matters for a dairy farmer to bear in mind is that the returns he gets from his cattle depend greatly on the feed provided for them and the treatment to which they are subjected.

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PLEASANT VIEW FARM, HAPPY VALLEY.

(From a photograph taken by Mr. R. W. Clark.)

❖ ❖ The Poultry Yard. ❖ ❖

Diseases of Fowls.

(Continued from last Issue).

—Dropsy.—

The chest, crop, brain, wattles, and other portions of the fowls body are subject to dropsy. Abdominal dropsy has already been dealt with. After this the most frequent seat is the fowl's wattles and is most common in the Mediterranean breeds, and often the result of injury. The wattles assume an enormous size. The simplest remedy is to make a clean cut in the lower part of the swelling, when the liquid will flow out. The cavity should then be syringed out with warm water, into which a few drops of Condy's Fluid has been mixed. Following this a teaspoonful of cold water and a few drops of iodine should be syringed into the wound, which will heal up in a few days, and no more trouble ensue.

Dropsy of the crop can usually be relieved by placing the fowl's head downward, and squeezing the crop gradually. Chest dropsy is rarely detected, except by post mortem examination.

(To be continued)

Buying Poultry.

The poultry industry owes much to the fancier, for had the poultry farmer no source from which to acquire new blood he would soon find his profits diminishing.

The fancier aims to keep the breed or breeds in which he is interested up to the highest standard of perfection, and little does the general public realise the time and expense which this entails. No one will ever succeed as a breeder of prize poultry who does not possess, in addition to a genuine love for his feathered pets,

an unlimited amount of patience and perseverance. One year his birds carry everything before them, but next season the other man is successful, and appropriates all the honours.

Even with the most prominent and successful exhibitor, the number of young stock it is necessary to hatch and rear, from which to select a team that will do him justice in the show pen, incurs an expense which the casual visitor at a poultry show would hardly credit. If there is an average of five fowls out of every hundred reared, possessed of sufficient merit to do their owner credit in the show pen, that owner can consider himself fortunate indeed, whilst in some breeds, such as silver or gold-laced Wyandottes, owing to the difficulty in breeding well laced plumage, the average is much lower.

Small wonder is it, therefore that the fancier asks a price for his winners that the lay mind thinks extortionate, but when all expenses are taken into account even if the breeder were to sell all his winning birds at these figures he would not make a profit. Breeders of the present day value their reputation so highly that they will not keep an inferior specimen, but kill all 'culls' as soon as they are old enough for table purposes. Every season lots of people are very anxious to buy these 'culls' at the price of table birds, but the fancier who desires to make or maintain a prominent place amongst the 'fancy' steadfastly refuses to sell them alive, as nothing would more quickly lead to his undoing than to allow to be seen by the public a lot of 'scalawags,' which are declared by their owner to be bred direct from 'So-and-So's' birds. Sooner than let this happen, would any leading breeder wring the neck of every bird not up to a reasonable standard and burn them.

Thus it is that no rubbish ever leaves a reliable breeder's yard, and so the public are protected from having inferior poultry foisted upon them. When a good quality of poultry is required, let the buyer patronise a reputable fancier and be prepared to pay a fair price for a good article, and both parties to the deal will be satisfied.

—Queensland 'Agricultural Journal.'

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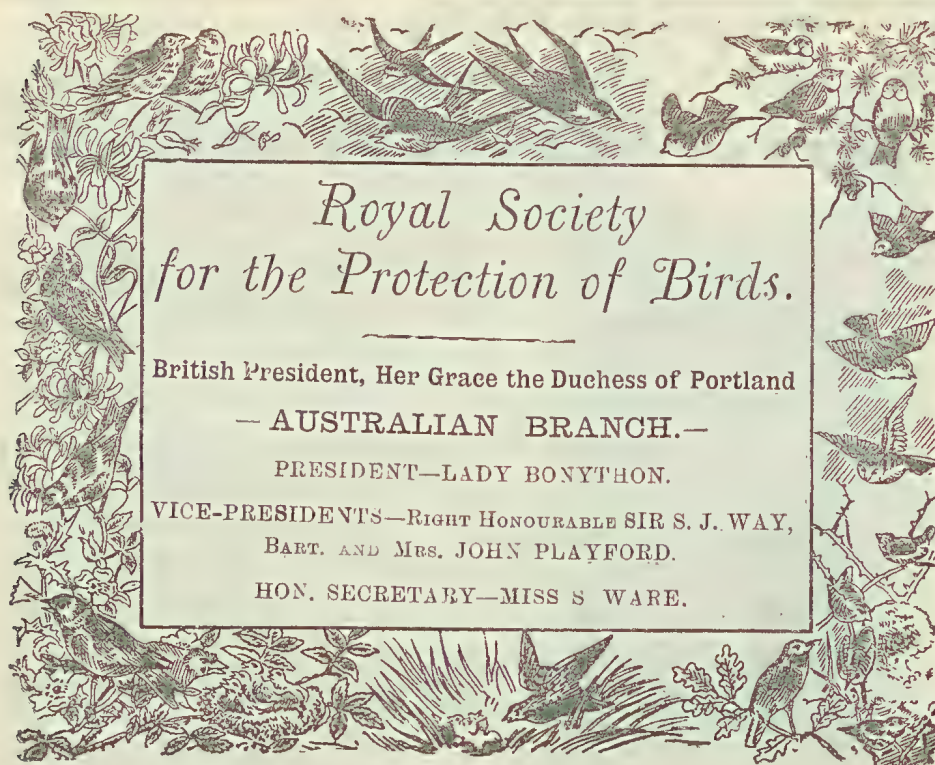
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Several Aspects of the Protection of Our Native Birds

[By Walter W. Froggatt, Government Entomologist, in the
'Agricultural Gazette of N.S.W.']

(Continued from last issue.)

The movement before the lovers of animal and bird life to get the power to have these Acts administered as the farmers intended, and further still to have all the State laws dealing with the matter embodied in a comprehensive Federal Act, has now become a necessity. It is only a few years ago that the citizens of the United States arrived at the same conclusion, but their laws were in even a more complicated condition than ours are at the present time, for not only did each State, and there are forty-eight of them, have a different Game and Protection Act within its boundaries, but in some cases several counties of a single State had different regulations and close seasons, so that the unscrupulous pot-hunter could step across the boundary line and kill all he wanted with impunity.

The laws of the United States are considered perfect now, in theory at any rate; but it is not so much from what they are doing now, as what was done in spite of the old Acts, that we can learn some lessons. All their big game, bison and

deer, in their countless thousands, have vanished off the great plains in one generation. Mr. Mitchell, of Victoria, Texas, who came to the 'Lone Star State' fifty years ago, told me that he could remember the time when there were more deer on the prairie than there are cattle at the present time. You have only to take up the works of any of the writers of thirty or forty years ago to read how prolific life was on those rich lands. What has become of the countless millions of the passenger pigeons that used to take their flight every year over the North American forests, and which comprised one of the regular food supplies of the settlers? They are reduced to a few isolated flocks now nesting in the Michigan woods.

When the fashion set in for sea-birds' wings to trim ladies' hats some twenty years ago, there were countless flocks of that beautiful tern known as the 'sea swallow' on all the sands and islands from Cape Cod to Southern Florida; to-day there are only two small islands in the north where a few of these

birds can be found nesting, and the Government keep paid wardens on these islands for their protection. All the great hosts have been slaughtered for their plumes, to deck ladies' hats. In Southern Europe the treatment of feathered life could not be worse; for the natives of the northern shores of the Mediterranean Sea eat every kind of bird little or big, that falls into their hands. The Italians construct extensive and permanent trapping-places along the coast, in which, by means of nets and decoy birds, they destroy thousands of the migratory birds coming across from Africa on their way to Central Europe to nest in the summer time.

In the market at Beyruth, going from Constantinople, the writer saw hundreds of rollers, larks, and swallows plucked and offered for sale; and in the orchards on the Dog River, beyond the town, every man one met had a gun, and shot at every bird that came in his range. And in our State what is more common than to see wanton shooting of birds of every kind.

(To be Continued.)

A meeting of the Royal Society for the Protection of Birds was held at the Y.W.C.A. rooms on Monday, June 28. Mr. J. G. O. Tepper presided. The hon. secretary (Miss S. Ware) reported that the revival of the society had met with good support, but old members were slow in sending in their subscriptions. A letter was read from His Excellency the Governor, expressing his sympathy with the objects of the society and accepting the position of patron. Mr. J. W. Mellor, who represented South Australia at the State Conference, held in Melbourne last year to consider the unification of the game and bird protection laws, gave a brief resume of the work done at the conference, which sat for several days. The energy of one of the police officers stationed at Murray Bridge in carrying out the bird protection law was heartily approved of by the meeting, and reference was made to a conviction recorded against a city man for shooting a plover. Messrs M. Symonds Clark, J. W. Mellor, and J. G. O. Tepper were appointed to represent the society at the conference to be held during the week to consider the bird pest question.

Those desirous of joining the Royal Society for the Protection of Birds should communicate with the Hon. Secretary—Miss S. Ware, 112 South Terrace E., Adelaide.



The Australian Gardener



(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry),

CONTAINS—

Illustrations—

Mildred Grant Rose
Double flowered Zinnia
Sturt's Pea
Miniature Sunflower, Stella
Hibiscus
View of 'Ivanhoe,' residence of the
Hon. Geo. Brookman
View of 'Ivanhoe' in 1882

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Albert Molineux Scholarship

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A Prolific Plant
Primula Obconica Gigantea
Description of Flowers—
Zinnia, Aster, Sturt's Pea,
Sweet William, and Sunflower

Hardy and Ornamental Shrubs—A
Few of the Best Varieties

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The Orchard—

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News and Notes

The Poultry Yard—

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Fighting Red Mites
Green Feeding of Poultry

The Young Folks—

Our Girly's Garden
The Names of the Month—Their
Origin and Meaning
Tongue Twisters

WIT AND HUMOUR

The Ladies' Page—

An Empress's Toilet
Why His Marriage was a Failure

Tried Friends.

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EDITORIAL.

Wet, wet, wet. The atmosphere during the last two months seems to have become surcharged with moisture. The sun has made a number of futile efforts to dry up the sky, but no sooner does a little hope come with the sunshine than the clouds obtain the mastery and dull dismal drizzling days follow each other in vexatious succession. The total fall of rain, however, is not so large as in 1908 up to date. The reason is that while there have been more rainy days, there have been but few storms and heavy downpours. The hills complain of too much wet so continuously because they cannot get ahead with their preparations for spring, and every week makes a difference to them. Those who pray are quite devotional in their hope for fine weather, and those who swear are none the less strong in their desires, but the two kinds of character have a different method of expressing their hopes and desires. The farmers and graziers, however, are just sitting around smiling in smug satisfaction at the way the season is progressing.

We have mentioned it before, but would reiterate the fact that fruit and vegetable gardeners do not pay sufficient attention to drainage. It seems in some cases to be a lot of labor to make big drains, but it pays all the time. The orchardist who puts his labor into the making of a necessary drain will save it over and over again in the working of his land and in the results of his crops. Badly drained land that will throw only one crop in the year, can be made to double its output under a proper system of drainage by carrying two crops. In fact the land can be made to grow stuff

all through the year by a carefully arranged rotation and fertilising.

In the article on vegetable garden operations for the month the author gives some good advice upon the work of trenching ground when preparing for planting. We might add to his remarks that trenching may be a garden laborer's job, but few things will hamper the grower more than badly trenched ground. The man who pitches a clayey subsoil up on top and the loam underneath will never be forgiven by the man who has to work the ground afterwards. Trenching wants brains as well as muscle, and many a good piece of land has been spoiled through lack of brains in the first process of preparation.

Potatoes will be dear next year, so they say. Certainly if the rumors about the Irish blight having appeared in certain potato districts be true there is no doubt the mighty tuber will be more scarce than housewives care to think about. There is probably no article of diet more generally used by the Britisher than the Potato, and anything in the way of disease appearing will make a big difference to his dinner table.

This month is a busy one for the orchardist. Well, for that matter, what month in the calendar is not for the careful man. The only difference in each month is that some are more busy than others. August brings more work than July, anyhow. What with manuring, grafting, budding, spraying, and general preparations for the growing strength of the sun, which starts all the latent energies of life into activity, the orchardist has not too much leisure. He cannot forget that what is good growing weather for his trees is equally good for weeds and pests, and a battle royal is coming along fast between those things that are profitable and those that are not.

An interesting article appears this month upon Strawberry culture. Few products are more profitable than straw-

berries when grown in virgin soil and in favored localities, and, as the writer points out, they are great aids as runners up to newly planted orchards.

In the timely article on dairying there is one point that we would emphasize. That is the care of cows when dried off. Most dairymen look upon this period as an unprofitable one, and consequently allow their cows to get down in condition through neglect. Such treatment is a great mistake, because the cow requires to be kept up in condition by careful feeding just as much then as when she is in full milk. Without proper and sufficient food there is a great wasting of condition which has to be made good when she is coming in. This making up requires an undue amount of energy, and the forcing business is too great a tax on the constitution and does not pay either in immediate output both on the part of the man and his beast. In successful dairying system is everything.

This is the dull season for flower gardening, although the man who knows his business can keep his beauties going now just as well as at any other time in the year, though, maybe, there is not the brilliance of colors now as during the spring and summer. Brilliance, however is not looked for during the winter months, and the lovely perfumes of the jonquills, and violets, makes up for a lack in other respects. Then her sister blooms of lovely daffodils and tulips account for all the rest of what might be wished for. Pansies, too, are blooming, and what more can one want than the bright cheerful coloring of these beautiful flowers.

Preparations are now to be made for the bright sunshine with such gay things as Asters, Zinnias, and Sunflowers. Zinnias are coming into vogue and very fine blooms can be had of them. The hotter the sun, the better they seem to like it. In fact, on a scorching summer day it is quite refreshing to look at a bed of Zinnias enjoying the fierce rays of the sun.

Received.

We are indebted to the New Zealand Department of Agriculture for the following publications:—

Division of Biology and Horticulture—
Report, 1908.

Bulletin No. 13, the Gum-tree Scale

Bulletin No. 14, Diseases of Turnips

Bulletin No. 20, Eelworms

Bulletin No. 21, Parasitic Plants

Bulletin No. 22, Fruit-Flies

Bulletin No. 23, Bacterial Diseases of Plants

Leaflets for Gardeners and Fruit-growers, No. 26—Cicada and other Species.

Leaflets for Gardeners and Fruit-growers, No. 27—Cineraria and Chrysanthemum Fly.

Leaflets for Gardeners and Fruit-growers, No. 28—New Zealand Peach Moth.

Leaflets for Gardeners and Fruit-growers, No. 33—Verrucosis of Lemon and other Citrus Trees.

Leaflets for Gardeners and Fruit-growers, No. 34—Two Fungus Diseases of Gooseberry

Leaflets for Farmers, No. 78—Diseases of Field Crops and Forage Plants.

Leaflets for Farmers, No. 79—Sand-binding Grasses.

From the Forest Department of New South Wales we have received Vol. IV., Part 5 of 'The Forest Flora of New South Wales,' beautifully illustrated.

Albert Molineux Scholarship.

In regard to the above, Mr. W. L. Summers, Secretary Advisory Board of Agriculture, writes us as follows:—

"Herewith please find copy of letter we are addressing to all members of the Bureau. This letter explains itself, and I shall be glad if you can give publicity to the object in view. There are many farmers, orchardists, &c., in the district throughout which your paper circulates, who are not connected with the Bureau, but who have derived great benefit from

the work of the late Mr. Molineux. I think those who know of what he has done during the 40 years since he first started to write on agricultural matters will agree with me that to no one man is more credit due for the present prosperous condition of South Australian Agriculture than to Mr. Molineux. The establishment of one or more scholarships at Roseworthy will enable the sons of producers to obtain the benefits of three years training at that institution, so that those who give to the fund will not only assist in commemorating in a worthy manner, the services of our late friend, but also will be helping to advance the agricultural interests of the State."

[Copy of letter.]

Department of Agriculture,

Adelaide, July 5, 1909.

Dear Sir,—

You have doubtless seen notices of the death of our late friend Mr. Albert Molineux. In connection therewith it has been suggested that the members of the Agricultural Bureau and other organizations with which he was connected for so many years should commemorate in some suitable way the valuable services rendered by him to the agricultural community.

The members of the Advisory Board of Agriculture are of opinion that the most appropriate memorial would be a permanent 'Albert Molineux Scholarship' at the Roseworthy Agricultural College. To establish such a scholarship to be offered for competition every third year would require about £800, while for £1,600 two such scholarships could be offered. In view of the fact that for over 40 years Mr. Molineux was an earnest advocate of scientific methods of agriculture in all its branches, the Board is of opinion that a scholarship to enable young men to secure a training in scientific agriculture would be a singularly appropriate recognition of his work.

It is not necessary to refer in detail to Mr. Molineux's work. Suffice to say to say that he was founder, and for many years Secretary, of the Agricultural Bureau; he was one of the first to advocate the use of fertilisers, fallowing,

and mixed farming; to his persistent advocacy of the value of Bordeaux Mixture for the prevention of scab in apples and pears, shothole in apricots and other fungus diseases, and of arsenic sprays for suppression of codlin moth our fruitgrowers are largely indebted.

In these circumstances the Board feels that it is justified in asking each and all interested in our agricultural industries to contribute to the proposed fund. All subscriptions should be sent to the 'Secretary Advisory Board, Department of Agriculture, Adelaide,' and the Board appeals for liberal and prompt response as the members would like to be in a position to announce the successful issue of the movement at the September Congress of the Agricultural Bureau.

Yours sincerely,

W. L. SUMMERS,

Secretary Advisory Board of Agriculture.

Some idea of the extent of the farming enterprises in the Argentine may be gathered from the number of live stock owned by Senor M. Cobo. On his estancia there are 12,000 pedigree Lincoln sheep, about 3,000 of which are rams, and 4,790 shorthorn cattle, besides a number of well-bred Jerseys, and a stud of 1,150 Cleveland and Clydesdale horses.

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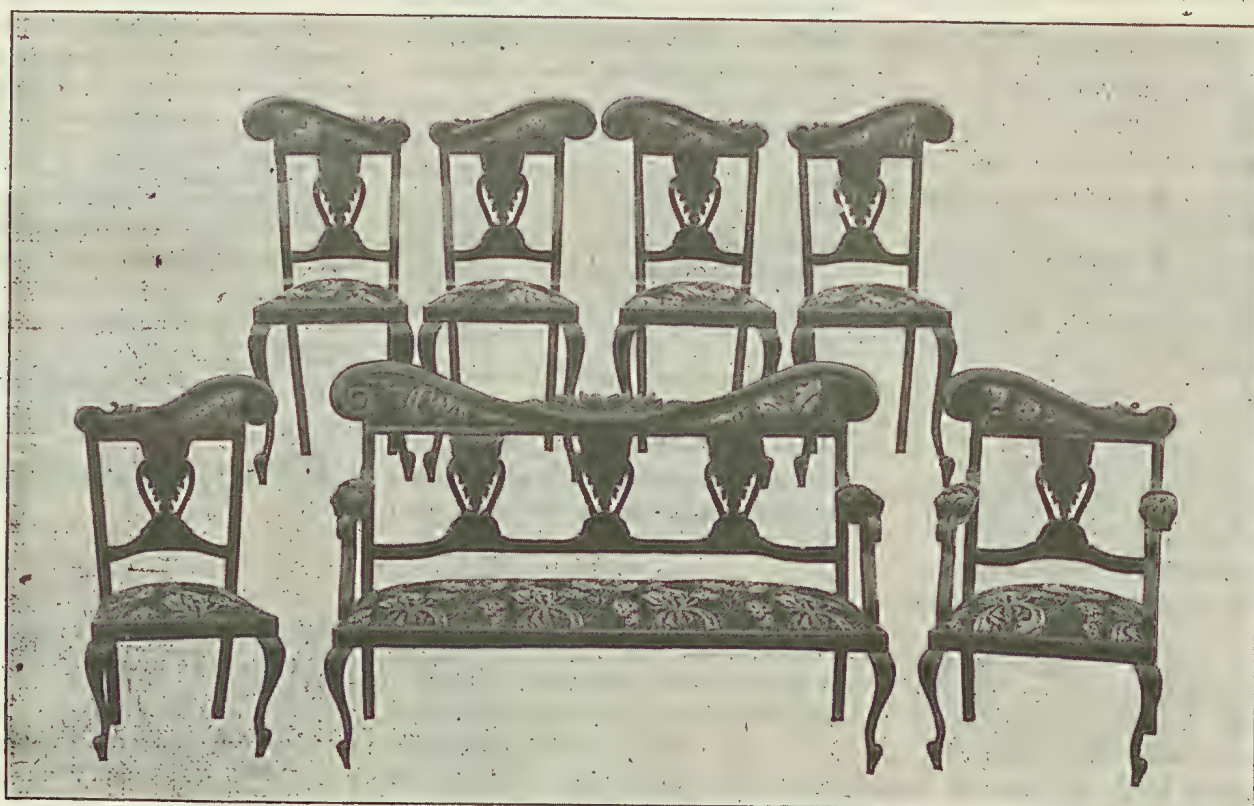
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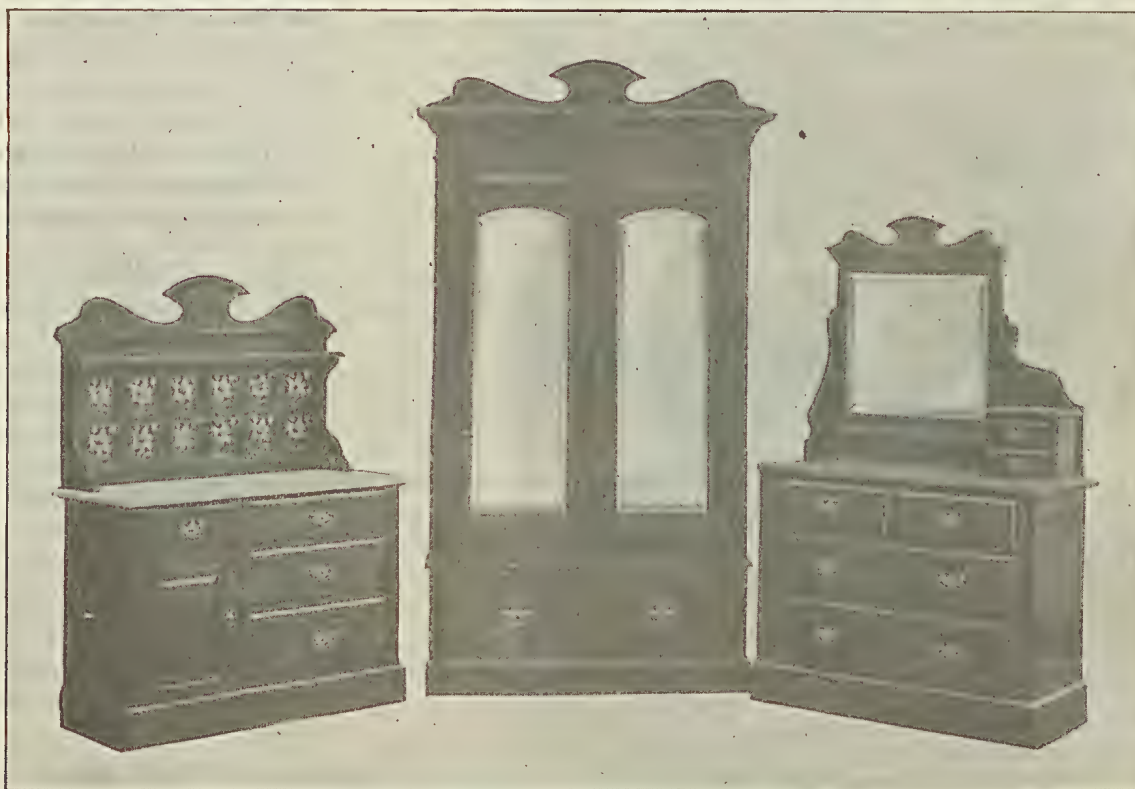
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MILDRED GRANT ROSE.

The Flower Garden.

Notes for the Month.

— Summer Annuals. —

Beds should be made up at once for raising summer annuals. The simplest way to raise these flowers successfully is to put a heap of new stable litter some 2 feet deep and broad enough to set a frame upon, the frame of course having a glass covering. In this spread some fine rich sandy soil, 9 inches deep, and make firm by treading. The glass is then affixed and the frame kept closed until the manure has generated heat by fermentation, which will occupy about a week, when the soil should be carefully watered. This will cause all weed seeds to germinate, and when they have appeared and been destroyed the seeds of annuals should be sown. In this way a perfectly clean seed-bed is secured, this being an important point in the raising of delicate plants, as it is difficult to dis-

tinguish the plants proper amongst a lot of weeds. So soon as the annuals are fairly well grown above the surface the glass frame should be opened an inch or two, and the ventilation gradually increased as the plants mature, so that they may become gradually hardened for planting out. All digging should be finished by the end of the month, or the growth of many plants will be injured, for although no injury is done in digging when plants are at rest it will ruin many when they are in a growing state.

— Trees and Shrubs. —

Evergreen trees and shrubs may be planted to the end of the month if a liberal supply of water can be given through the summer. Those planted in autumn will now be well advanced, and this should show the advantage of planting them at that season.

Put in cuttings of shrubs, such as Vincas, Veronics, Pimeleas, Spirææ, and Diosma. Young growing points should

be used for cuttings, but they must be put under glass until rooted. A good plan is to half-fill a pot with sandy soil, dibble the cuttings round the sides, and cover with a sheet of glass. Then set them in a shady place until rooted. Plant, prune, and train climbing shrubs, including Tecomas, Jasminums, Bougainvilleas, and Rhyncospermums, at once.

— Roses. —

The rose garden will require special attention. Manuring and digging having been completed and standards staked, the growth will be advancing, and it is at this period that the first effort should be made to combat the attacks of aphides, which, if allowed to breed unchecked, often destroy the beauty of the rosary. They will cause but little trouble if the rose trees are sprayed occasionally with soapy water or a solution of Burford's emulsion. A gallon of water provides mixture enough to destroy any number of them.

— Lawns. —

Lawns of couch or buffalo grass may be laid out, and both these grasses should be treated in the same manner. The soil should be dug deeply and manured liberally. Before planting the surface should be made perfectly even. The roots should be dibbled in an inch or two apart. Small tufts with little roots attached should be planted with just the tips showing above the surface. In putting in couch grass it is a good plan to sow some seed of the same after the planting is finished, at the rate of 1 oz. to the square rod, and run a rake lightly over the surface to bury the seed.

— Weeds. —

One important operation during the month is checking the weeds that spring up and grow so rapidly at this time. Nothing adds so much to the labor of gardening than the neglect to hoe at the proper time. When the weeds first appear above the surface the slightest stirring with the hoe destroys them, and the work can be rapidly performed, but when neglected for a few weeks, particularly if the soil is moist, the work is much slower, and often the weeds are merely transplanted. Early hoeing is the most

important operation in the garden after digging.

— Carnations. —

Propagate carnations by slips or shoots pulled off the sides of the stems. Trim off the lower leaves and pot them, six in each 5-inch pot, using a compost of equal parts sand and good soil. The pots should be set in a glass frame, which must be kept closed and shaded from sunshine. The tree kinds of carnations are amongst the most useful, as well as the most beautiful of flowers, as they are scarcely ever without blooms.

— Begonias. —

Another grand flower that has found favor is the tuberous Begonia, on account of its easy culture and splendid flowering qualities. The Begonia, whether double or single, deserves a place in every garden. It will now be emerging from its dormant state, and will require a little attention. All the old soil should be shaken from its roots, and it should be repotted in a mixture of peat, decayed manure and sand.

— Seeds to Sow. —

Sow Balsam, Begonia, Calendula, Capsicum, Petunia, and Phlox; also Half-Hardy Annuals if you have frames or sheltered positions available.

— Other Work. —

Plant Cannas, Verbenas, Tuberoses, Pentstemons, and Chrysanthemums; also Gladioli for late flowering.

Cut back Geraniums that are growing in the open.

A Prolific Plant.

Cyanoche chlorochilon holds for the present the record for number of seeds per capsule. According to the 'Kew Bulletin (No. 4, 1909), the number of seeds in a capsule of this plant presented to Kew by Messrs. Hugh Low & Co. is, at a low estimate, about 3½ million. Dr. Scott, who estimated the number, adds that the weight of each seed is about 20,000 seeds to the grain—and that the progeny of the single flower would, if all the seeds came up, be about equal to the population of London.

Primula Obconica Gigantea.

Of recent introduction, this fine addition to our Winter and early Spring flowers is very welcome. To those who have not seen this wonderful improvement on the old favorite, P. obconica, I would say procure seed at once, as it is one of the floral gems. The plant is in every way more desirable than the type. The foliage is large and handsome, and curls over, almost hiding the pots. It is in the flowers, however, that the chief improvement lies, and these are certainly very fine. The shades are very varied and chaste, being quite up to the standard of the finer of the old type, while they are easily three times the size. The trusses, too, are very large and compact, being carried on long stiff stems, which render them most serviceable for cutting for vases. Like the ordinary P. obconica, the shades of lilac, pink, and pale purple show up well under artificial light, and are admirable for dinner-table decoration. This strain is quite as easy to cultivate as the old kind.

—'Gardening World.'



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DOUBLE-FLOWERED ZINNIA.

Description of Flowers.

May be Sown during next Month.

— Zinnia. —

This class of annuals is named after Zinn, a German botanist, and is of great beauty and brilliancy. It is of a branching habit. There is, perhaps, no class of annual flowers which has been so much improved of late years as the double-flowered Zinnias, which may now be considered as almost perfect. They flower throughout the entire summer, and always do best when transplanted. The flowers, which are large and perfectly double, range in color from white to the most intense scarlet, orange, rose, salmon, purple, &c. Considering their very easy culture, they should be largely grown in every garden. Most any soil suits them, and the same may be said of position. Two waterings per week is sufficient supposing the ground is well mulched. On lawns they can be used to great

advantage, massing thickly, say nine inches apart. Although very hardy when well established, they are at first tender, and should, therefore, not be sown in the open ground until September, when frosts are not likely to occur. In cold districts they should be sown some weeks later. When the young plants are 2 or 3 inches high, they may be transplanted to about 18 inches apart, and should be stopped by pinching off the points of the main shoots when about 9 inches high, to induce a compact bushy growth. Zinnias are valuable for their beauty and for the long time they remain in bloom. The numerous varieties form splendid beds or patches, but the flowers being rather coarse in texture should not be too near the eye. The best of the varieties are:—Giant, double-striped scarlet and gold; Zebra, or striped, produces handsome

striped double flowers of various shades and perfect shape, as evenly imbricated as a Camelia; Queen Victoria, a pure white variety, with flowers measuring 4 in. across; New Giant (*Grandiflora robusta*) produces perfectly double flowers of immense size—5 or 6 inches across—of the most brilliant and beautiful colors. Other desirable varieties are Double Pompon, Tom Thumb, Dwarf Double, &c.

— Aster. —

Asters are very showy plants for beds and borders; they bloom abundantly in almost any soil and situation, and cannot be surpassed for cut flowers. When well grown, nothing can exceed the chaste loveliness and exquisite color blendings of a nicely-arranged bed of choice Asters, and certainly no plant can be more easily raised and grown to perfection. They are half-hardy annuals, producing a profusion of bloom, in trusses of six to eight heads, of beautiful colors, stripes, and spots, 3 or 4 inches across. Light rich soil with a mulching of manure suits them best. As a rule, Asters should not be sown before September, and, to ensure a succession of fine blooms, further sowings may be made up to January. These latter, although they will not probably produce such fine blooms as those sown earlier, will be found exceedingly useful. As already stated, Asters will thrive and flower in almost any good garden soil, but, if really fine blooms are required for exhibition, it is advisable to have the soil well broken up, and a good quantity of thoroughly-decayed manure worked in. The healthy growth of the plants and the development of fine blooms are greatly assisted by the occasional application of liquid manure up to the time of the plants showing the flower when it should be discontinued. Seed may be sown in spring and autumn. They are the better for being transplanted. Give plenty of water during dry weather. The most popular varieties are:—Sunlight Surprise, the first pure yellow Aster, attaining a height of 15 to 20 in., with flowers 3 to 4 in. in diameter; Fancy Aster, canary yellow, producing large flowers, with fine curled pure white



STURT'S PEA.

outside petals, and the centre of deep yellow tube petals; Ostrich Plume, Malmaison Rose, bears immense double flowers, 4 in. across, beautifully curled and twisted—color, white with pale lilac; Betteridge's Quilled, a very attractive quilled variety, specially suited for bouquets; grows about 2 feet high, is much branched, and flowers freely; Giant Comet, this class forms regular pyramids, profusely covered with large flowers, very full and double, resembling the large-flowered Japanese Chrysanthemums in their twisted and curled petals; Dwarf Bouquet (Boltze's), of close compact habit, good for bedding, and attains a height of only 8 inches; is a profuse bloomer, very fine; Dwarf Chrysanthemum Flowered, a beautiful sort, very free flowering, each plant producing 12 to 20 flat-petalled flowers, about three inches across; very useful for edgings, beds, and borders; grows about a foot high; Hercules, pure white, is a novelty of imposing aspect. The plants throw up a very strong stem about 18 inches high, which begins to branch four inches from the ground, and bears at its summit the central flower; on the side shoots

appear 4 to 6 blooms on long stalks of the purest white, with very long petals, with a diameter of 6 to 7 inches; Truffaut's Pœony-flowered Perfection (Improved), a splendid incurved variety, with flat petals, fine for exhibition; the plant is of pyramidal habit, $1\frac{1}{2}$ to 2 feet high; White Plume, the large double flower very closely resembles a pure white large-flowered Japanese Chrysanthemum, with its long, flat relaxed petals—each petal is ribbed, giving the flower a peculiarly elegant appearance; the color is of a pure glossy white; Victoria, a magnificent recurved variety, said to be the finest of all Asters; its fine large blossoms are perfectly double and beautifully imbricated; they are splendid for exhibition. In all cases were the color of a variety is not stated the flowers are of various colors.

— Clianthus (Sturt's Pea). —

The Desert Pea may justly be reckoned amongst the most beautiful of our native flowers. It is a native of the driest portions of South and West Australia. The flowers are brilliant crimson, about three inches long, and in the centre there is a large clear black marking. It is a trailing biennial plant, a little difficult to raise; but it richly repays all trouble spent on its cultivation. The most suitable soil for the Clianthus is a sandy one, but it will also thrive and bloom on ordinary good loam. The best time to sow the seed is in September or October, and care must be taken to select a sunny situation. The Desert Pea is known as Clianthus Dampierii (Parrot's Beak). Puniceus, the Glory Pea, is a very handsome perennial shrub, resembling the above, but more erect of habit. It bears a crimson flower.

— Sweet William. —

This is one of the biennials which should not be sown later than November, in order that the plants may become strong for transplanting with the first autumn rains, though the seeds may be sown where the plants are to remain,

The chief varieties are:—Barbaratus, which produces large trusses of splendid colors; Hunt's Perfection, auricula-eyed, produces immense heads of the richest and most beautiful colored flowers; Mammoth Sweet William, Holborn Glory, unapproached for show, exhibition, or stage purposes—many of the individual florets more than covering a penny piece; Harlequin Sweet William is a very large flowered, single variety dwarf, the flowers being of various shades.



— Sunflower (Helianthus). —

The Helianthus (from Helios, the sun, and anthos, a flower) is an old-time favorite in every garden. The single and double varieties are equally popular. The giants and the dwarfs have each their fitting places. The dwarf variety (called the miniature) is most suitable for general work in planting a flower garden, and they will show a brightness in the garden when most other flowers have succumbed to the heat of summer. The small-flowered varieties—Stella (illustrated above) and Cucumerifolius—are most decorative and useful for cutting. It is one of the best yellow summer annuals. Seed should be sown in the spring and summer. In addition to the well-known varieties, local seedsmen are now supplying a so-called Red Sunflower. The plants reach a height of 5 feet, while the light purple flowers attain a diameter of 8 inches. Flowers are produced continually during the summer.



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— Rhododendrons. —

The charming family of Rhododendrons, Azaleas, and their kindred will occur to any one who desires showy flowers in the shrubbery. There is no more beautiful class of plants, but, unfortunately, they will not thrive everywhere. Those who cannot succeed with them may console themselves with Roses and Pæonies. The Rhododendron is a hard-wooded, evergreen shrub, producing magnificent heads of flowers of a variety of colors. Planted in a sheltered position they will thrive in a satisfactory manner. They like a peaty soil, but will succeed in light loamy or sandy soil that has been recently broken up, but rarely do well in soil that has been cultivated. It is beneficial to the plants to mulch the soil with fresh cow dung, which helps to retain the moisture and to keep down the temperature. Rhododendrons are easily raised from seed, but many varieties are propagated by grafting on seedling stocks in pots.

— Pæonies. —

Pæonia Moutan (the so called tree Pæony) is a shrub that will thrive in soil that is death to Rhododendrons. For the best results in growing Pæonies one must have patience, as it is only after they have been established some years that they begin to show their real beauty. They need the choicest places in the garden, plenty of sunshine, rather moist and very rich soil, often renewed. They are grand plants when well grown, and worth a great deal of trouble.

— Lilacs. —

Lilacs are charming shrubs, and desirable for their beauty and fragrance of their flowers. They are propagated in many varieties, but the old fashioned white and dark lilac kinds are as hardy and satisfactory as any, and will stand more neglect than any of the newer kinds.

— Cydonias. —

Flowering Quinces, or Cydonias, are beautiful objects in the spring, especially the bright scarlet and the pure white varieties. Cydonia Moerlosii has

exquisite flowers of shaded carmine, and there are varieties that have bloom of a conspicuous orange-red, such as *Cydonia aurantiaca*, which ought not to be planted near Lilacs or shrubs with rose-pink flowers.

— Hibiscus. —

Although there is a considerable number of handsome species of this genus in our gardens, and nearly all are beautiful, there is not sufficient character in many to make it worth while to cultivate more than a select few. Most of them are easily propagated by cuttings or seed. They require little attention, flower in any soil, with or without shelter, and produce a profusion of lovely large flowers. *H. Mutabilis* (Changeable Rose) is a very large bushy variety, growing to a height of 10 ft., and produces a profusion of large, very handsome, double flowers, something like immense double roses; white on first opening, then becoming cream-coloured, and finally of a deep rose tint. *H. Rosasinensis* (Chinese Shoe Plant) is in almost constant blossom, with its brilliant, crimson-scarlet flowers, with the long, pretty column of pistil and stamens projecting down their centre. *H. Chrysanthus* has large-sized golden flowers, with a purple-crimson spot at the base, forming a dark-colored eye; attains a height of about 6 feet. *H. Syriacus* averages about 6 feet in height, and bears large, lilac-blue flowers, with dark-purple eye. *H. S. Alba* bears double white flowers. Besides these, there are many beautiful varieties to be obtained from our nurserymen.

— Deutzias. —

Of Deutzias, the double-flowered pink and white *Deutzia crenata* is perhaps the most conspicuous. It forms a large bush, sometimes eight or nine feet in height, and is covered with bloom.

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NOTICE TO FRUIT AND PLANT DEALERS.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.
2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.
3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.
4. No plants other than those growing in pots having soil attached to their roots will be admitted.
5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.
6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.
7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.
8. No plants or portions thereof will be admitted from any State or country where phylloxera exists unless accompanied declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phylloxera exists or has existed in the plantation from which the plants originated.
9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.
10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace.

L. O'LOUGHLIN, Minister of Agriculture.

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Yard Long or Snake Beans, 6d per packet	Early White Vegetable Marrow, 6d packet	Capsicums and Chillies
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CRESS and MUSTARD.

Sow for succession about once a fortnight in light rich soil in drills half an inch deep and 8 inches apart, and sow thickly.

CUCUMBER.

The cucumber is not very particular as to soil, so that it be light, rich, and loamy; it may be nearly all sand, provided that good rich manure be added, and that it be deeply dug. The cucumber bed needs shelter from the westerly winds. The pits, or, as some call them, hills, should be made ready during this month, in the following manner:—

Mark off the land in 6-foot squares, and at each intersection make a hole 2 feet in diameter. If the soil be not naturally rich, mix with it a compost made up of well-rotted stable manure, sheep or poultry dung, wood ashes, bone-dust (if procurable), and a little salt. Fill up the hole with this prepared soil, and sow five or six seeds in it in a ring. Half an inch is deep enough for the seeds. When they are up, take out all but two plants in each hill. Stop all lateral runners as soon as they show fruit, and the secondary runners must be pinched back to the fruit in the same manner. If the weather is dry, give the beds a good soaking with diluted liquid manure about once a week. Water every evening sufficiently to damp the soil right down to the roots.

To produce straight cucumbers, place under them three-sided boxes 3 inches wide, with the open side uppermost.

A good way of watering cucumbers to ensure the water reaching the roots is, as soon as they show signs of running, to dig a hole large enough to hold a quart can, and place it in the holes near the roots of the plants. Put the cans in the ground, about 2 inches deep, and fill them with water every other day.

Cucumbers should be picked when just about full grown, before the seeds fill out, and always before any signs of ripening set in.

Cucumbers are ready for use in from 65 to 100 days.

EGG PLANT.

This excellent vegetable was described in our last issue. You may commence

The Vegetable Garden.

Operations for the Month.

This is another preparation month. There need be no idle time in August if your vegetable garden has any pretensions to size, as every inch not turned over should be dug.

— Trenching. —

Vegetables cannot be grown with any success in soil that has not been deeply trenched and made rich with manure. Those who intend to cultivate a plot during the coming Spring should set to work at once, while the weather is favorable, and do the necessary trenching. There are two kinds of trenching. They are known as ordinary trenching and bastard trenching. When the former is given effect to the earth in each trench is turned upside down. It causes the subsoil to be brought to the surface and the topsoil to be turned underneath. That kind of trenching suits loamy land where there is little or no difference in the soil for a number of feet in depth. Where the subsoil is clayey in character, and clearly defined as distinct in composition from that of the surface layer, ordinary trenching must be avoided. It should be worked by the system known as bastard trenching. The adoption of this method results in the soil being stirred as deeply as possible, and at the same time retaining each layer in its natural position. Bastard trenching is done by opening a trench two feet wide at the edge of the plot. The surface layer taken out should be wheeled to the further side where a finish is to be made. The underlayer of soil should be stirred to a depth of not less than 30 inches. It should be thrown out of the trench so

as to permit of a thick layer of well rotted stable or farmyard manure being placed in the bottom. When that has been done the subsoil must be thrown back to its position. The surface layer from the second trench may be placed on the top part of the first trench to replace that which was removed to the further side of the plot. Each trench may be similarly dealt with. The earth taken from the first trench will form the top layer of the last. When land is trenched and manured in the manner described its texture is improved and it is made fit to grow any kind of vegetable or root crop. In addition to trenching, adequate drainage must also be attended to.

— The Hot-Beds. —

Hot-beds that were formed last month will require attention. The almost constant rain tends to reduce the temperature, and fresh linings of manure are necessary.

JERUSALEM ARTICHOKE.

Plant more tubers if required in rows 3 feet apart and 1 foot in the rows.

SILVER BEET.

Sow a little seed in rows, and afterwards thin out the seedlings when they have attained a height of about 2 or 3 inches.

BROCCOLI.

Seed may be sown in small beds or seed-boxes, and the seedlings transplanted when the young broccolis are large enough. Sow thinly in little drills.

CARROT.

More seed may be sown if needed. Sow in rows two feet apart; make several successive thinnings, until the young plants stand from 4 to 7 inches apart, according to the variety.

sowing the seed in the open at the end of the month.

HERBS.

The various kinds may still be lifted, divided, and replanted. We went fully into the subject of herbs in our June issue.

LETTUCE.

Make a further sowing for succession. If plants are available, say three or four inches high, plant out in good rich soil, which has been trenched and well manured, in rows a foot apart each way.

ONION (for Pickling).

Sow in shallow drills about a foot apart and do not cover deeply. When large enough transplant in rows a foot apart and about six inches apart in the rows, and apply liquid manure occasionally.

MOUNTAIN, or ORACH SPINACH.

This is also known as Tree, Cape, and French Spinach. The leaves are used as Spinach. Sow in drills 2 feet apart. When the plants are 3 to 4 inches high, thin out to 18 inches apart in the rows.

POTATOES.

More potatoes (for late crop) may be planted if required.

RADISH.

Sow either in drills or broadcast, and when the plants are fit thin out to about two inches apart.

RAPE.

Make a small sowing of Broad-Leaf Essex Rape in the same manner as Mustard and Cress. It is a very wholesome vegetable; the leaves are used as Spinach, and also as a salad.

SEA KALE.

If you have plants in the second season of their growth they should now be covered over with earthenware pots or boxes. If pots are used, cork up the hole in the bottom, and draw soil round to keep out all light. This will cause them to blanch, as it is only in this state that they are used. When the plants are 8 or 10 inches high, they may be cut for the table. As soon as the full cutting has been made, clear away the covering to allow the plants to make their natural growth and recover themselves for another season.

PRICKLY SPINACH.

If required, make another sowing in rows 1 foot apart. When the young plants have made four or six leaves, thin them out to from 9 to 12 inches apart.

TOMATO.

The Tomato being a gross feeder, the soil in which to grow it can hardly be too rich, especially in lime, potash, and phosphoric acid. A perfect Tomato soil is a rich sandy loam, well drained, deeply ploughed, and subsoiled. Unless sown in a hot bed or cold frame, the seed should not be put in until the end of the month or beginning of next. When the plants are about 6 inches high, thin out to about 3 feet apart, and put up a light trellis to train them on. The plants which have been taken out may be planted in some other part of the garden. Before planting out, clip all the leaves off except the top bud. The plants so treated will start to grow immediately, because they are not obliged to spend their energy in trying to revive the dying leaves. The plants will bear a month earlier.

When the first fruit forms, stop the plant by pinching off the ends of the shoots.

A very good plan to train Tomatoes is to erect a frame of hardwood pegs, 18 inches above the ground, nail hardwood battens on the top, and stretch wire netting across it. The young vines must be properly guided and trained through the meshes, and not be allowed to fall back again. When the vines are full grown, the top of the netting is a complete mass of fruit and leaves, and all the fruit is clean.

Tomatoes may also be trained on stakes. As soon as the planting is completed, a split stake, 5 feet in length, is firmly set at each plant, and about the time the fruit is setting each plant is tied with common cord. The string is tied firmly round the stake, and loosely about the stem of the plant, so as not to interfere with its growth. Care must also be taken not to allow the fruit to cluster, so as to rub against the stake.

The sprouts or auxiliaries will grow very rapidly, and must be constantly pinched off. Three tyings are necessary up to the time when five good clusters of

fruit have set. When these aggregate 20 or 25 tomatoes, the top is pinched off and the whole strength of the plants is centred in the production of firm, bright, smooth Tomatoes, of good and uniform size. Pinching back the suckers tends to increase the size of the leaves, making shade for the fruit. Constant systematic pruning forces the plant into fruiting; therefore, carefully remove all suckers.

Tomatoes mature in from 100 to 150 days, according to variety, soil, and climate.

— Manure for Tomatoes. —

It is a prevalent idea that the Tomato will not stand heavy manuring. This is true of the crop after the fruit has set. In the early stages of development, nitrogen, phosphoric acid, and potash may be liberally supplied with advantage, but, after the fruit has set, manuring with farmyard manure or other stimulating fertilizers delays the development and ripening of the fruit.

A good manure is made up as follows: 2 parts of nitrate of soda, 2 parts bone-meal, 3 parts kainit, and 4 parts of superphosphate.

Of this mixture, 1 oz. per square yard of soil may be applied weekly, from the time that the plants are established till the fruit has set. Superphosphate has been found to hasten the maturing of the fruit.

TURNIP.

Sow more seed for succession.

Set the seed in light, rich soil, in shallow drills 15 inches apart; sow the seed thinly, and when they come up thin out to 8 to 10 inches in the rows.

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Vegetables in the Eighteenth Century.

Some interesting observations on the above subject appear in a recent number of the 'Journal of Horticulture.' For many years varieties remained without any change. There were no novelties in peas, potatoes, or lettuce. French beans were represented by more varieties than any other vegetable, and a dwarf-growing kind was much welcomed as preferable to the climbing sorts. The Scarlet Runner had been cultivated a hundred years previously, solely for its flowers; but Miller recommended it for its edible pods. The cauliflower was of the poorest quality, and sold from 1/ to 2/ each. A little later on this vegetable of the right sort was sold at 5/ each. In 1800 there was only one variety of the white or cauliflower broccoli; but there were half-a-dozen kinds of 'sprouting,' or, as some called it, the Italian asparagus.

Seakale was hardly known. In its wild state the young growths have been boiled and eaten time out of mind. The method of blanching it was copied from Nature, the heads being covered with a coating of sand 4in. thick, and the heads were cut before they pushed quite through.

Turnips were in general cultivation, and a large number of sorts were known. In Scotland turnips were customarily eaten raw at breakfast.

Celery only became an English vegetable in the eighteenth century. It was planted 4in. to 5in. apart, and the roots and tops were pruned before planting, so one can imagine what the produce was like.

Rhubarb was not used as a vegetable until late in the century, when the roots were planted to make tarts of the stalks in the spring.

The potato made an extraordinary progress. The tubers were at first planted 6in. apart, and the crop lifted as the potatoes were wanted. The working man did not use them at all, and for a long time he refused to have anything to do with a plant which bore the character

that arrived with it at its introduction. However, by the middle of the century its value as a food, and not merely a luxury, began to be recognised.

The cucumber became, quite early in the century, one of those subjects which tested the abilities of gardeners to produce. The pea was an important crop, and was forced under glass, the seed being sown in pots in the autumn, the plants wintered in cold frames, and planted out in spring. Asparagus was well grown, and forced on ordinary hot-beds.

Uses of Fertilizers for Vegetables.

Garden vegetables do not exhaust the soils on which they are grown to any extent as compared with the exhaustion produced by many spring crops. Peas and beans are the most exhausting crops. The chief ingredient in a good fertilizer for vegetables of which the leaves and stems are the edible portions is nitrogen. For root vegetables, phosphoric acid and potash are about as important as nitrogen. For vegetables, of which seed is the edible portion, especially such as are planted early, like the garden pea, phosphoric acid is the leading element. For vegetables like the tomato, egg plant, celery, melon, &c., potash is the most important.

Nitrogen forces early growth, and gives large, succulent leaves and stems. Potash gives solidity and crispness to stems and leaves, and high color to the fruit. Phosphoric acid gives plumpness, and increases the sugar and starchy parts of the seed, and forces early maturity. A good general fertilizer for all garden vegetables, except peas and beans, would be the following mixture per acre, but intensive market gardeners use three or four times as much:—Sulphate of potash, 150lb. to 225lb.; superphosphate 250lb. to 375lb.; nitrate of soda, 150lb. to 225lb. The fertiliser should be raked in just before the seed is sown. For peas and beans the normal amount of potash and phosphoric acid may be doubled, and the nitrate of soda reduced to 50lb. per acre. The sulphate is the best available

form of potash for garden vegetables, as it contains no chlorides of salt, and does not make the soil cold. It also acts with especial favorableness on the starchy portion of vegetables. Fresh or water-slaked lime is always beneficial to garden soil.

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15 CENTRAL MARKET.

Cultivation of the Potato.

[From 'Queensland Agricultural Journal']

Next to the cereals, the potato is probably the most important food plant grown for man. It is a native of America and was brought to England between the years 1580 and 1585 by Sir Walter Raleigh, from Virginia. It was received, however, with great disfavor; and the Church condemned it as an unholy article of diet, seeing the race and place from which it originated. It was not until the year 1805 that, by the exertions of Dr. Buchan, it became popular. In France it was quite neglected until a certain gardener, who had grown some and found no sale for them, induced one of the kings of France to wear a potato blossom as a button-hole. This at once popularised the despised potato in that kingdom. Chemically, the potato consists of starch, gluten, and woody fibre, with, of course, water. On the authority of the late John Wilson, Professor of Agriculture, Edinburgh, an 8-ton crop of potatoes, taken from 1 acre of land, removes from the soil in which the tubers were grown—of the bases of alkaline earths, 90lb. of potash, 8lb. of soda, 5lb. of lime, 7lb. of magnesia; and of acids, 34lb. of sulphuric acid, 20lb. of phosphoric acid, 10lb. of hydrochloric acid—in all, 170lb. of inorganic matter. This was for tubers alone; and if an equal quantity were allowed for the tops, the quantity taken would be about doubled.

— Manures. —

It is, therefore, evident that, to grow potatoes to perfection, the foregoing constituent elements must be present in the soil. Professor Wilson found the best results to be obtained by preparing the soil early, and applying phosphatic and potash manures some time before planting, in the proportion of about 150lb. to the acre. At the time of planting, nitrate of soda is sown into the drills at the rate of 1 cwt. per acre, and from $\frac{1}{2}$ to $\frac{3}{4}$ cwt. at earthing-up time.

On light, poor, sandy soils nitrogenous manures in the form of sulphate of

ammonia should be applied at the rate of from 140lb. to 170lb. to the acre—one half to be used at the time of planting, and the other half at the final earthing-up.

The matter of farmyard manures for growing potatoes is a somewhat vexed question. Undoubtedly farmyard manure is good, provided that it has been properly fermented and well decomposed; but there is nothing more fatal to good results with potatoes than putting fresh manure and potato sets together, for the young plant can never force its way through the fermenting mass of decay consequent upon slow decomposition.

Some interesting experiments, made in England by Mr. E. B. Hodley, Agricultural Superintendent to the Wilts County Council, threw considerable light on the matter of the use of artificial manures. The seasons were dry ones, and therefore more favorable to farmyard manure than to artificials, the yield from its use being considerably in excess of that obtained from the heaviest dressing (12 $\frac{3}{4}$ cwt.) of mixed artificial manures. Where nitrogen, phosphoric acid, and potash have been applied in artificials, excellent crops have been obtained; but the heaviest crop of all was 14 tons per acre as the average of four years, grown where 8 tons of farmyard manure and 4 cwt. of sulphate of ammonia per acre were applied. The complete chemical manure was applied on different plots at the rate of 4 cwt., 8 cwt., and 12 cwt. respectively. Taking the averages for the four years, the 8 cwt. dressing proved the most economical, although the 12 cwt. dressing gave a somewhat heavier yield. When any one of the three constituents of the complete manure was omitted, there was a decrease of yield. Where the nitrate was omitted, the increase resulting from the application of kainit and superphosphate was not sufficient to pay for the cost; where superphosphate was omitted, the application of nitrate and kainit gave very little profit in excess of that obtained from the unmanured plots; and, although where kainit was omitted the yield most nearly approached that obtained from the completely manured plots, yet, even in this

case, the profit was less than that obtained with a cheaper dressing of complete manure.

In conducting experiments of this nature, it should be remembered that artificial or farmyard manures will not invariably produce the same results on different soils. The rich, black soils of the Darling Downs, for instance contain certain constituents which are wanting in lighter western or coast soils. In some there may be already a sufficiency of phosphoric acid; consequently, an application of superphosphate might prove injurious. Where cultivation grounds are deficient, as most of them are, in phosphoric acid, it becomes necessary, in order to obtain a better crop, to secure it in the form of an easily soluble phosphoric acid. Bone-dust is a phosphoric acid manure which gives this result; but superphosphates produce better and quicker results.

For potatoes, a fertiliser rich in potash is essential. For general purposes a good mixed fertiliser for this crop should consist of—Available phosphoric acid, 7 per cent.; potash, 11 per cent.; nitrogen, 3 per cent.; 700lb. to the acre.

Sulphate of potash is mostly employed as a source of potash for potatoes. Muriate of potash is said to give even better results than the former.

Dried blood contains, on an average, 11 to 13 per cent. of nitrogen but it is less soluble than sulphate of ammonia and nitrate of soda. Manures containing sulphate of ammonia should not be mixed with lime; nor applied to land which had been recently limed.

The value of kainit lies in its potash, of which it contains 12 per cent. It is the cheapest of potash manures.

(To be continued)

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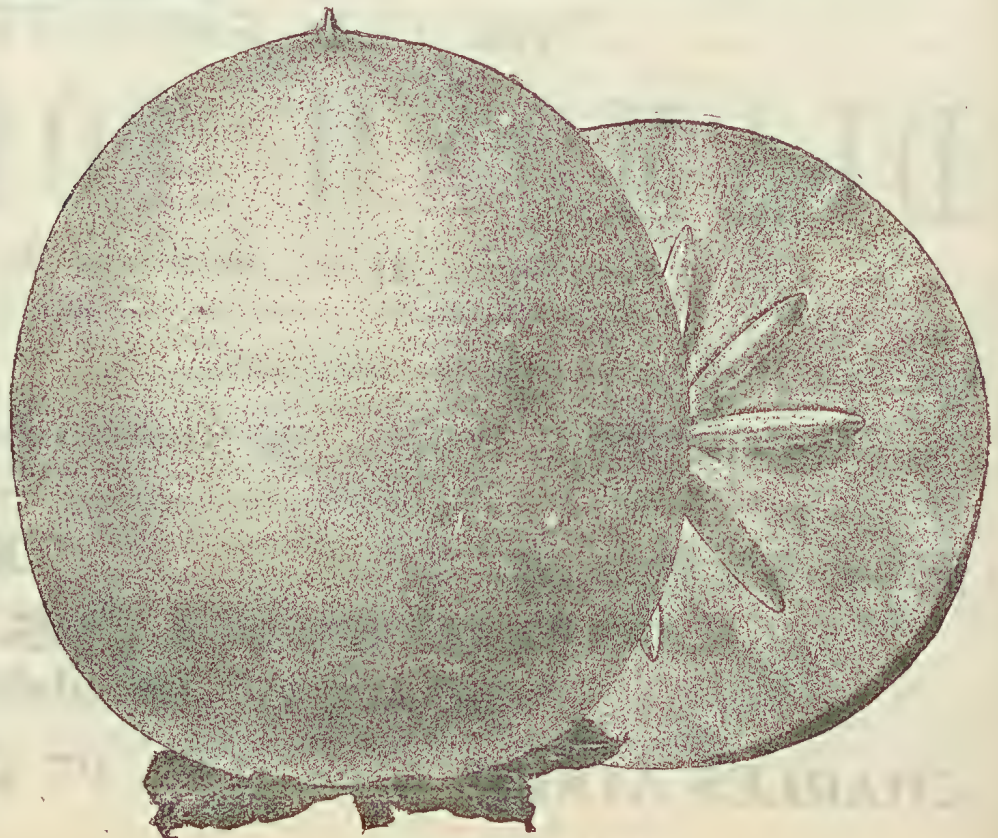
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JAPANESE PERSIMMONS.



The Orchard.

Operations for August.

Prepare ground at once for planting lemon and orange trees. Manure must be used liberally, or no good results must be expected. As a rule the ground should be trenched two feet deep and the manure worked evenly down from top to bottom as it is a serious mistake to throw it into the trenches in masses. Care must also be taken to provide free drainage when planting in low situations, because a stagnation of water at the roots is disastrous to these trees, although a liberal supply of water must be provided to carry them through the months of January to April. After trenching, the ground should be left a week or two to consolidate, so that it may be in a good, firm condition by the middle of September, when the trees may be planted. Young orange trees should be manured and forked around, and afterwards mulched with a good coat of half-decayed stable manure. Older trees will now be in full bearing, and it is difficult to cultivate amongst them until the crop is removed, but as the fruit from each tree is gathered no time must be lost in manuring the trees and forking amongst the roots. Scale sometimes attacks the trees in a serious manner, but this is readily destroyed by spraying once or twice with soapy water in which a little kerosene has been mixed. Two ounces of soap dissolved in a gallon of water and a gill of the oil, kept well stirred, will generally cleanse the trees at the second application.

Now is a good time to manure amongst apricots, peaches and nectarines. Well-decayed stable manure is the best fertiliser for these trees, but bonedust may be substituted where no lime exists in the soil. Loquat trees may be planted. The ground should be trenched and well manured, and they should be planted in quarters by themselves rather than be mixed up with other kinds of fruits; old trees should be well pruned, severely thinning out the branches and twigs, if superior fruit is desired. Loquat stones may be sown in nursery beds.

—Grafting and Budding.—

The latter part of this month is a good time to start the grafting of deciduous nursery stock, and should there be any unprofitable apple, pear, or other trees standing in the orchard, these also may be grafted to good varieties. Grape-vines are easily grafted just as the buds are well swollen and about to burst. Old peach, plum, and apricot trees will be found much harder to graft than either apple or pear trees. If, however, there are any such in the orchard which are unprofitable, it would be as well to cut them back and graft to better varieties, and in the event of the grafts not taking, young shoots might be allowed to grow and buds inserted either in the summer or fall.

—Spraying.—

Besides the above work there is the winter spraying with the salt sulphur, and lime solution, which will kill two birds with one stone, being both an insecticide and a fungicide. It answers fairly well in keeping in check the curl leaf of the peach tree, but for this latter disease Bordeaux mixture is even better. Trees treated with either of these solutions will show very little curl.

—San Jose Scale.—

The lime, sulphur and salt is one of the best sprays we have for San Jose scale, but where trees are badly infested it is best to give two sprayings, one in the fall and another in the spring, just as the leaf buds begin to swell and the trees are in blossom.

—Aphis.—

For peach aphis the resin and soda is a good useful spray, as is also the blue oil emulsion, but it usually takes several applications to keep this pest in check.

At time of pruning, particularly in young orchards, a sharp lookout should be kept for the appearance of woolly aphis, and should any trees be found infested, they should be carefully pruned, removing and burning as many of the infested twigs as possible. Then either scrub the trees thoroughly with a strong kerosene emulsion, or fumigate with hydrocyanic acid gas, so as to eradicate this pest if possible.

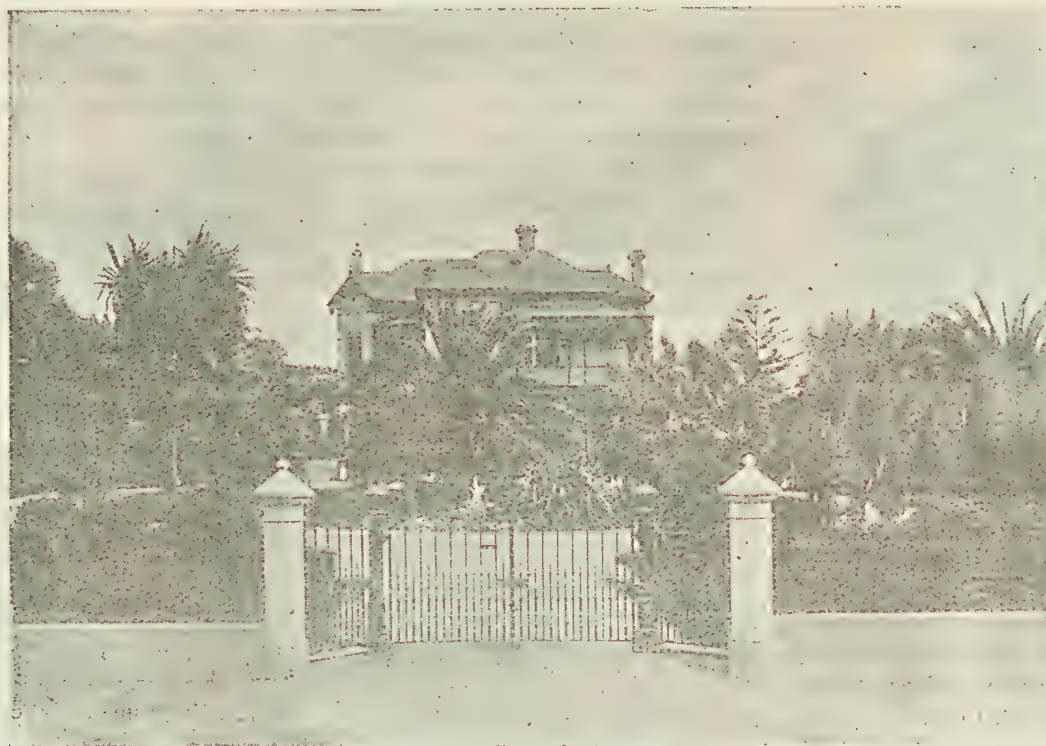
—Codlin Moth—

All old bark should be scraped from apple, pear, and quince trees, and the scrapings burnt, and every thing in the orchard which is a harbor to codlin moth must be destroyed.

In this State, the arsenate of soda spray has given good results. It is prepared as follows:—1 lb. of best arsenic and 2 lb. of washing soda boiled in 1 gallon of water for about three-quarters of an hour or until the mixture is clear. Then add a pint of the stock solution to 40 gallons of water to which has already been added from 6 to 8 lb. of best freshly-slaked lime; if this latter precaution is neglected, the result will be that the spray will seriously burn the foliage. Some varieties of apple-trees are much more tender than others; for these use the larger quantity of lime. The arsenic is much cheaper than Paris Green, and when bought in quantities should not cost more than about one-third as much per lb.

—Clean Fruit Houses.—

Keep all fruit houses as clean as possible, as there is no doubt that they are responsible for harboring a great many moths every year; therefore keep the rooms as air tight as possible and as soon as the moths begin to hatch in the spring, burn sulphur fumes in the rooms once every other day for a fortnight, so that the moths may be destroyed as they begin to fly.



View of "Ivanhoe," Residence of the Mr. George Brookman, Gilberton, S.A.

—Vines.—

In working around vines keep a sharp look out for the pupæ of the vine moth. If there are any old partially rotted stakes, the moths will be found adhering to these, and also under the old bark which is hanging to the vine. Crush these wherever found, and thus assist in keeping down this pest as far as possible.

Growers who intend using quick-acting fertilisers should make the first application this month. It is best not to apply too much at one time, but rather make two applications—one now, and one after the fruit is well set.

Strawberry Culture.

Notwithstanding that there are numerous localities admirably suited to the cultivation of the strawberry, in which other forms of fruit-growing are practised, this herbaceous perennial is not as extensively grown as it should be. Strawberries require to be newly planted every three or four years, for they seldom

bear profitable crops in land where their culture has extended over this period. In many places the money value of a strawberry crop does not appear to be recognised. Particularly is this the case where young orchards are being commenced. In these instances the strawberry might well be utilised to provide a return over the four years of waiting that must be undergone, while the young trees are coming into bearing. Until the fruit trees are five or six years of age they do not require the ten feet of soil on either side of them; but it must nevertheless be cultivated. This being the case, the labor might be made productive of profit, if the land between the rows are used for strawberry-growing. Of course, all soils are not suited to strawberries; but where the land is of a light, loamy nature, and fairly retentive of moisture, this plant will generally flourish.

— Preparing the Land. —

Strawberries succeed best when planted in virgin soil. Occasionally growers are met with who have obtained good results from replanting upon a former site, a year or two after the original plantation

has served its term of usefulness. When such a course is followed, it is advisable that the land should receive liberal dressings of manure; and thorough cultivation. Even then it is not altogether to be recommended, for old land is seldom free from weeds, and is consequently more difficult to keep clean. The selection of a suitable site presents but little difficulty, so long as gradual slopes are available, though where obtainable, a position receiving the benefit of the afternoon sun is to be preferred. The land should be prepared in the same way as for young trees. A good deep ploughing should be given, and the soil then allowed to remain in fallow until the following season, when it should be turned over again and harrowed frequently, so as to thoroughly pulverise the clods and make the soil loose and workable. Some growers advocate the growing of a crop, before planting with strawberries, as they claim that the ground is made more accessible for the penetration of the young roots. This is, however, a matter for the grower to decide, for so soon as the soil is well broken up and aired, the young plants



View of "Ivanhoe" (Mr. Geo. Brookman's Residence) in 1882.

may be put into position, with every prospect of their thriving.

— Width at which to Plant. —

Strawberry cultivation in Australia is almost entirely, if not exclusively, confined to growing the plants in rows, though, in America they are sometimes cultivated in the 'mat.' This latter system consists of allowing the runners to take root, and so cover the whole field. In our climate it has nothing to recommend it, for, under such conditions, the beds cannot be kept free from weeds; the fruit cannot be gathered without damage to the plants; and ripening is retarded. Intending planters will, therefore, find it advisable to confine their efforts to row-planting. Young plants may be put in until the end of August, though the earlier they are put in the greater the likelihood of them coming into bearing the following season. Prepared land should be marked out in lines about 2ft. 6in. from each other, and along these the young plants set at intervals of 18in. When the lines have been marked out,

the usual procedure is to provide one or two men with measuring rods, who go along the lines marking the positions the young plants are to occupy. If the strawberries are to be grown between the rows of trees the distance between the lines may be increased to enable scarifying and keeping down the weeds to be done expeditiously. The lines should never be nearer than five feet to the trees, for while they do not require much space during their early existence in which to spread their roots, ample room should be left for extension.

— Selection of Plants. —

In established gardens young plants are secured either from the runners thrown out shortly after blooming or by the division of the parent. None but the strongest runners should be selected, and every care should be taken to ascertain that the stock is a good bearer. This is a matter of great importance. Some plants are almost sterile, and consequently bear very few, if any, berries. During the fruiting season the estab-

lished plants should be carefully observed so that, when any are found to be barren or poor bearers, they may be uprooted. If this is not done, the grower runs the risk of planting them out on some future occasion, which will almost inevitably result in loss or absolute failure. As the runners from the more prolific bearers are thrown out, the grower should go along the rows making small holes with his fingers, and placing the joints of the runners in them. They should then be lightly covered with soil to hold them in position. By doing this they are guarded from the wind, and are enabled to strike their roots and become firmly established by the time they are required for forming new beds. Runners as a rule make stronger growing plants than those obtained from dividing up the parent stocks. Obtaining plants by division, however, has its advantages. When the season has militated against securing a good strike from the runners, the complement required for setting out a new block may be obtained by dividing the

original plants into a number of sections, and so prevent the loss of a season.

— Planting. —

Setting out the young plants needs to be done carefully and expeditiously, if rapid progress is to be assured. The operation is a simple one, yet unless proper care is exercised, it is likely to result unsatisfactorily. In the effort to facilitate matters the young plants should not be distributed along the rows to await the planter placing them in the earth, or the tender roots may be damaged from exposure. About one third of the roots should be trimmed off, and the plants placed in moist bagging to keep them fresh, while the planter is conducting his business. A small hole should be opened with the hand, or trowel, and the plants quickly placed in position, care being taken to spread the roots out evenly, and to firmly press the earth back again, without covering the crowns.

— Artificial Manure. —

In the poorer soils it is advisable to lightly sprinkle a very small quantity of some artificial manure in and around the hole when planting. However light this may be, the manure should be well mixed with the soil, to prevent the roots from coming in immediate contact with the dressing. Almost any kind of fertilizer may be used for the purpose. Frequently this first manuring is sufficient, but should it be found desirable a 2 cwt. dressing of superphosphates to the acre will considerably aid in forcing the plants the following spring. Rank growth is to be avoided, for over-strong plants seldom bear prolifically, and dense foliage retards ripening.

— In Conclusion. —

It is advisable that every precaution be taken to guard against procuring plants which do not possess the power of self-pollination or are not easily fertilized from other plants. In this connection where any doubt exists it is better to plant several kinds, within close distance of one another, so that a sufficient number of staminate or male flowers may be produced to furnish pollen sufficient to

satisfactorily fertilise the remaining plants. Strawberry culture has much to recommend it as a special industry and as an aid to the orchardist just commencing. In the latter case the term of the strawberry's fruitfulness is just sufficiently long to provide remuneration while waiting for the trees to become productive. The constant cultivation necessary to keep the weeds down will also be of great assistance in bringing the soil to a fine tilth, and the plants may be dispensed with before they have had time to hinder the trees' development.

Interesting Orchard Notes.

A freak lemon has been culled from a tree in the garden of Mrs. W. E. Jury, of Hectorville. The growth is shaped strikingly similar to a lady's hand, long and delicately shaped, with the thumb and four fingers distinct. This particular tree has borne a heavy crop of fruit this year, and several other freaks, of a less startling character, have been noted among the lemons.

+ + +

A new method of packing grapes is described in a recent number of the 'Revue Horticole.' A portion of the stem is left attached to the bunch, and the two cut ends of the stem are covered with wads of cotton wool, well soaked in water. Pieces of water-proof paper are wrapped over the wool, and kept in place by elastic rings. The grapes are then put up in boxes, with the usual packing between the bunches. Bunches packed by this method and others packed in the usual manner, were dispatched from one part of France to another, and after having travelled over a thousand miles, were inspected by competent judges. Those specially packed were found to be as fresh as when cut; the others, packed in the ordinary way, were in a lamentable state. The extra cost of the special packing comes to 2/ or 3/ per 100lb.

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BEE = CULTURE.

Bees in Relation to Flowers and Fruit-Culture.

By Isaac Hopkins, Apiarian, in Bulletin 18 of N.Z. Department of Agriculture.

I. IN RELATION TO FLOWERS GENERALLY.

The primary object of this chapter is to bring under the notice of our orchardists and others interested in fruit-growing the immense value of the cross-fertilisation of fruit-blossoms in the production of fruit, and to show the important part the hive-bee plays in bringing this about. In order the better to realise the complex mechanism of flowers, and the wonderful process of fertilisation, and so to appreciate the effects of cross-fertilisation in the orchard, I deem it necessary to touch upon these points before dealing directly with the main subject.

Insect-life and plant-life are almost entirely interdependent upon each other. Insects obtain sustenance and, in most cases, shelter from the vegetable world, while plants of most kinds are mainly dependent upon insects for the propagation of their species. A host of insects, large and small, of which the hive-bee is the most important, feed chiefly on the saccharine matter secreted in the nectaries of blossoms; and some of them (the hive-bee in particular) require for their own food or for that of their young a good deal of farinaceous matter supplied by the fecundating dust of the anthers of the same blossoms, termed 'pollen.' On the other hand, it is necessary for the proper fertilisation of the plant that such fecundating dust brought from some other plant of the same species should come in contact with its pistils, and this is effected by the agency of insects chiefly

—Sexual Organs in Flowers.—

In flowers there are organs analogous to, though widely differing from, those indicative of sex in the animal kingdom. The functions at least are the same; and the combined action of the two sets is essential to the propagation of the race by seed.

In this connection it is interesting to

note the remarks of the late F. R. Cheshire. He said:—

Blooms are produced by plants in order that seeds may follow, and so the race be continued. Two parts are essential to this reproduction—the anther and the pistil, the latter very generally occupying the central position. The anther is usually a double-celled pouch, the contents of which by segmentation break up into a number of perfectly similar parts called 'pollen-grains,' which though minute are complex in structure. When these are mature the anther splits or hehiscs, (to open) and the pollen escapes, but it needs in some way to be applied to the termination of the pistil, called the 'stigma.' When this application is effected, the pollen-grain absorbs moisture, its interior portion swells, and actually throws out a tube which often grows to a great length in making its way towards the unimpregnated nucleus of the ovule, which is situated in the ovary at the base of the pistil. In this nucleus a large cavity filled with protoplasm has developed, called the 'mother-cell,' within which we find the embryonal vesicle to which the contents of the pollen-grain is transferred by the channel of the pollen-tube. This is fertilisation, and upon it depends the production of seed, for the new individual plant has its beginnings from this inter-fusion.

Most flowers are hermaphrodite, or double-sexed—they contain both the stamens (anther-bearers) and pistils within the same calyx or on the same receptacle; but there are some species where the sexual organs, male and female, are found on different individual plants, so that some agency for the transference of the fructifying pollen-grains is absolutely necessary, or the species would soon die out. Many of the latter are anemophilous (wind-fertilising plants), with inconspicuous flowers yielding no nectar, therefore not attractive to insects. In these cases nature provides the male blossoms with an abundance of pollen-grains, which are wafted by the wind to considerable distances, and so are likely to reach female blossoms and fulfil their all-needed function.

(To be Continued.)

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Two Points of View

WHAT THE BEEKEEPER SAID.

My stocks this year are sound and strong,
In fact I think I shan't be wrong
In hoping I may take ere long
Two hundred pounds of honey
What's that? A swarm? Oh, how insane!
Which hive? What? That one swarmed again?
It's quite enough to turn one's brain—
And yet—Its very funny—

I could have sworn I'd killed their queen.

Either—how dense I must have been,
Or else—whatever can they mean?

Hello! here comes the rain!

Shall I be scored off by a bee?

I'll put them back and make them see
They've got to do what pleases me.

(Next day) Great Scot! they're out again!

WHAT THE QUEEN BEE SAID.

Two new queens out? Why, then, I fear

There won't be room for me in here;

Go out, and seek a lodging near,

Then all fill up with honey.

Last night our master paid a call.

And turned us over, great and small,

Then killed the largest drone of all

With lots of ceremony.

I'm sure he has some deep laid plot—

So swarm while yet the weather's hot,

For who can tell, if we do not,

We shall not all be slain!

Well, here's a door, so in we go—

What? Our old hive! Not if I know!

Shall this mere man coerce us so?

Out, bees, and swarm again?

—J.C.L. in 'British Bee Journal.'

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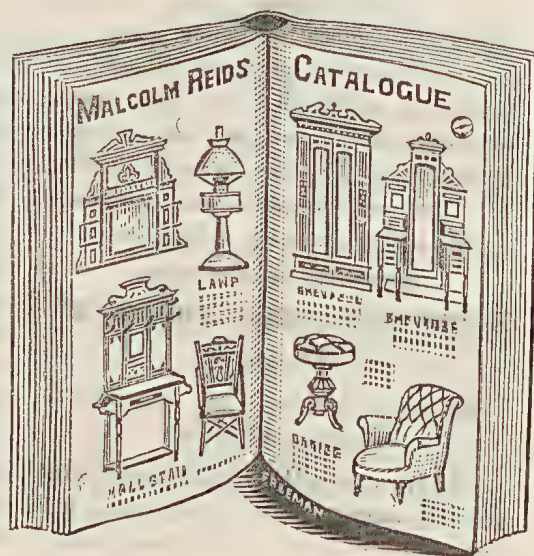
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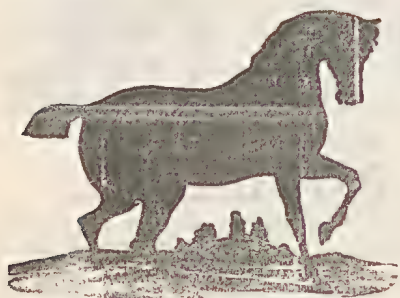


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THE FARM.

Sound Stallions.

The stallion should be pure-bred, recorded, certified to as regard breeding, and an excellent individual. It is of as great importance that he should be free from all forms of unsoundness or disease that are hereditary, transmissible, or communicable to offspring. It is equally as important and necessary that the mares bred to him should be sound in the same way, and not until both mares and stallions used for breeding purposes are free from unsoundness, such as we have indicated, can we confidently hope to raise the average excellence of our horse product to the high plane possible as the result of intelligent breeding and development. Many imported and home-bred stallions are unsound, and transmit to their progeny the predisposition to like unsoundness. This equally is true of the mares used for breeding purposes throughout the State, for many farmers have fallen into the grievous error of

considering any broken-down, halt maimed, blind, or otherwise unsound mare fit for breeding purposes, when no longer able to work in harness. Every breeder should have a clear understanding of the diseases and unsoundnesses that may correctly be deemed hereditary and transmissible, either in fact or as a predisposition. On general principles it may be confidently stated that blemishes and deformities due to accidental causes are not hereditary or transmissible, and do not, therefore, render the individual animal unfit for breeding purposes. In this category may be set down unsightly scars from barb-wire injuries, or similar accidental causes, blindness, due to accident; lameness, due to injury; united fractures, not implicating the pelvis causes, apart from disease, unfitting animals for labour. The greatest possible care must, however, be exercised in deciding these matters; and, where possible, it is much the better policy to select for breeding purposes animals in the best of health and free from every form of blemish or unsoundness, on the principle that breeding material should be of the best procurable character and quality.—The 'American Cultivator.'

Is Superphosphate Injurious?

By A.L.B., in the 'West Australia Agricultural Journal'.

One often hears the remark passed by practical farmers that as good results do not seem to be now obtained from the use of superphosphates as heretofore, but

they are somewhat at a loss to explain the reason. All sorts of reasons are assigned as the cause, but as a matter of fact there are very few of these come very near the mark. It remained for Dr. Howells, who was for many years Agricultural Chemist in Victoria, to solve this question; and when he became associated with the Mt. Lyell Company he determined to put his theories to a practical test in the manufacture of superphosphate. By experiments it was found that when a liberal supply of superphosphate was applied to the ground it did not appreciably diminish in fertility, so that the cause had to be looked for in some other direction.

While it is generally recognised that the application of phosphatic manures alone gradually depletes the ground in the other two principal constituents (potash and nitrogen) required to maintain a healthy growth, this was not recognised as being the principal cause of the diminution of the crops on which superphosphates have been applied. It was found to be characteristic of the soils of Victoria, Western Australia, and many other parts of the Commonwealth that they were largely deficient in phosphoric acid, but that potash and nitrogen were usually found, with certain exceptions, in sufficient quantities. The cause, then must be looked for outside of the question of the lack of any of these three principal constituents. An analysis of the ordinary imported superphosphates shows that they were heavily impregnated with sulphuric acid. It was here that Dr. Howells first suspected and finally proved that the

For GOODNESS Sake Use

VICEROY TEA.

cause of the unsatisfactory results that were sometimes obtained, after a continuous use of superphosphate, was to be found.

The process of the manufacture of superphosphate is very simple. The phosphate rock is ground to a fine powder, it is then treated with sulphuric acid to convert the insoluble phosphate to a water soluble and acid soluble state and render them available as a plant food. It is in the quantity of sulphuric acid used to accomplish this result that the principal cause of the trouble may be attributed.

In most of the imported superphosphates there will generally be found an excess of sulphuric acid. In a climate like England or the Continent, where they have a heavy rainfall, this may not be found injurious, as the sulphuric acid is to a certain extent leached out of the ground, but in wheat-growing areas of Australia, where the rainfall is much more limited, it has been found that the sulphuric acid accumulates in the ground. Sulphuric acid is a powerful fungicide and an insecticide, and when present in the ground in such large quantities it destroys many of the beneficial soil bacteria which are necessarily present in the ground that has a high fertility.

In the manufacture of Mt. Lyell superphosphates the minimum quantity of sulphuric acid is used to produce the necessary conversion from insoluble to soluble phosphates, and this to a large extent accounts for the superior results obtained by its use in every part of the

Commonwealth. It is not generally known to what extent the use of sulphuric acid enters into the use of superphosphate and when it is pointed out that every ton of superphosphate contains only 10 cwt. of phosphatic rock, the balance of the added bulk being made up with sulphuric acid and moisture, it will be recognised that this is the primary cause of the gradual falling off of crops where imported superphosphates containing excess of sulphuric acid are continuously used.

It may be authoritatively stated, however, that where superphosphates are used which contain only sufficient sulphuric acid to render them soluble, that no injurious effects will be noticed from their combined application. On the other hand, it has been demonstrated that where sufficient superphosphate of the right kind is used, there should be an appreciable increase in the crops. It must, however, be remembered that no manure will take the place of good cultivation in the seasons, and that on these factors are largely dependent the success or otherwise of the crop.

Miscellaneous Items.

In Canada, stock have to be artificially fed fully six months, if not more, every year.

Making tracks is not always desirable. If you do not believe it, walk across the newly-scrubbed kitchen floor with your muddy boots.

There is probably nothing better for starting lucerne than wood ashes. Ashes contain both lime and potash, with more or less phosphorous. All these the soil needs.

During the last ten years over 80,000 tons of wattle bark has been produced in South Australia, equal to considerably more than half a millions pounds sterling in value.

When young, lucerne is quickly destroyed by weeds, and it must, therefore, be sown on clean land and cultivated the first year. When once established it can take care of itself.

While it may, no doubt, be advisable to admit of some exercise for the sake of keeping the animals in health, yet the pigs that quietly eat their food and take their rest will always fatten readily.

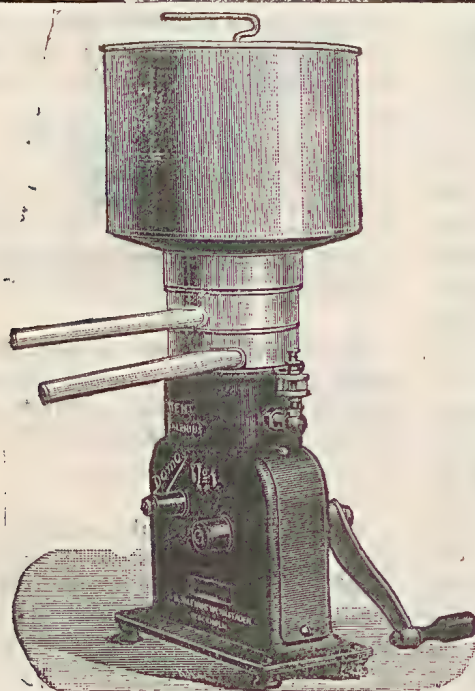
There are three kinds of cultivated barley—the two-row, the four-row, and the six-row. The aim of seed improvers is to get the productiveness of the six-row with the quality of the two-row.

Basic slag may be used on many kinds of land. It responds well on clay soil deficient in phosphoric acid and lime. The lime in this manure has an invaluable effect on seemingly worn-out lands.

When applying lime it should be remembered that this substance has a tendency to sink in the soil. Darwin has shown that the action of earthworms is one way by which lime is drawn down. It is better to apply small quantities at short intervals than a large quantity at one time.

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THE DAIRY.

Systematic Dairying.

W. A. Herkes, Senior Dairy Produce Grader.

To show what can be attained by the exercise of perseverance and systematic effort, attention is drawn to the farm of Mr. J. J. Swingler on the Moe Swamp. The property, known as 'Glen Iris Farm,' is situated on the banks of the main drain.

Previous to settlement, the land in question was covered with a mass of trees, tussocks, and reeds. Readers can imagine the hardships encountered by the pioneers. Many of them, like Mr. Swingler, had large families of growing boys and girls and practically no capital when they commenced operations in this now famous district. The intelligence and energy which this particular family must have expended to bring their small holding of 37 acres freehold and 35 acres

leasehold to the present state of excellence in the comparatively short period of 9 years command admiration.

The farm buildings are not by any means elaborate, but there is a comfortable home. Improvements in the form of an up-to-date milking shed and a modern piggery will shortly be erected, the opinion being held by the owner that the more comfortable the stock are made, the better will be the commercial return.

With few exceptions the condition of the herd is good. As the cows, Jersey-Ayrshire and Jersey-Shorthorn crosses are certainly very little if any better in appearance than many other herds in the district, we must therefore look to Mr. Swingler's methods to provide the key to his success. Several notable features stand out, the principal being (1) system of feeding, (2) treatment of cows, (3) system of crop rotation and cultivation.

—1. System of Feeding.—

Whether a cow is in milk or not, she is fed up to her capacity. When dried off she is so fed that when coming into

production again her condition is good and no time is lost in making up the waste that too many of our herds show at this particular period.

—2. Treatment of Cows.—

The members of Mr. Swingler's family are always amongst the cows, and each of the children has a favorite cow and the kind treatment goes far to swell production as evidenced by the cheques received.

—3. Crop Rotation and Cultivation.—

The home farm of 37 acres, subdivided into paddocks, lends itself admirably to the rotation practised. Such rotation, if not complete theoretically, certainly leaves little to be desired in the matter of production. The rotation is, oats, potatoes, maize or Japanese millet, followed by grass (rye grass, clover and cow grass) which in turn is cut for hay.

During 1908 there were 25 acres under cultivation, the crops being as follows, viz., 7 acres maize, 6 acres oats (for hay), 3 acres oats (for green fodder) 7 acres potatoes, 2 acres Japanese millet. This

represented nearly an acre under cultivation per cow. If the dairy farmers throughout Victoria would put an acre per cow under cultivation in various fodders on their respective farms, not only would they save their herds in time of drought but they would, I feel sure, double the yearly output per cow. Needless to say Mr. Swingler has a system of feeding, viz., grazing from 1st of September to about end of January. Millet and maize are then fed in conjunction with grass hay, followed during the autumn by oats grazed and oaten hay.

As dairying is the principal source of income on the farm the following figures will be found of interest. In all, 25 cows were milked during the year with the splendid average of £12 14s. 6d. per cow for cream alone, as shown by the following table authenticated by inspection of the books of the Trafalgar Butter Factory.

January,	£34 12 9.
February,	£40 11 1.
March	£28 15 4.
April,	£25 5 8.
May,	£23 17 3.
June,	£3 4 2.
July,	£6 1 6.
August,	£32 9 9.
September,	£34 3 6.
October,	£53 10 0.
November,	£36 17 1.
December,	£31 17 9.

Total £356 5 10.

Calves to the value of £25 were sold or kept for herd use; for potatoes the amount received was £93; and for millet seed £10; making a total production from the farm during 1908 of £484 5s. 10d. in cash, to which must be added the value of milk, butter, &c., for a family of 9 persons.

The whole is a result which the owner is justly proud of, though he recognises that still better results can be secured by the continued testing and culling of the herd, the use of a pure bull of dairy type, the further growth of fodder and its conservation by means of the silo which he proposes to erect.

If one farmer in this district, which contains thousands of acres of equally

good land, can secure the result, quoted above, how is it that the average output from herds is so very much less than Mr. Swingler's? Some might answer that Mr. Swingler has had better opportunities. This is not so, as he started with only the first instalment on the farm paid, a small house, a large family and a debt of £40; added to these disabilities he suffered the loss of his first year's cultivation through what is still spoken of as the big flood. To-day the capital value of the farm is £1,000, the stocks consists of a herd of 28 good cows, 4 horses, and the owner has a fair balance at the bank, the whole having been secured in 9 years. 'Does farming pay?' Mr. Swingler thinks so.

—Victorian "Journal of Agriculture."

News and Notes.

Cows should not be driven faster than a comfortable walk to or from the pasture.

* * * * *

It is much easier to cool a small quantity of cream than to properly care for the whole milk.

* * * * *

Essentials in good butter are:—First cleanliness; second, good feed; third, good breed of cows.

* * * * *

It appears from observation and experiment that cows with the most highly-strung nerves are, as a rule, the best milkers.

* * * * *

Keep the dairy sweet and clean. If you gain nothing else than an increased reputation as a good butter-maker it will pay you.

* * * * *

Perseverance and intelligence are the only two things that will win in the dairy. Without these you had better get out of the business.

* * * * *

Practical good sense must govern the dairy farmer at every turn. He cannot succeed unless he has the ability to form correct conclusions.

To sample cream properly it should be poured from one can into another two or three times and thoroughly mixed before the sample is taken.

* * * * *

Cheese is concentrated nourishment in a high form. A cheese 30lb. in weight contains as much building improvement for the human frame as a sheep.

* * * * *

A lot of inferior grains and vegetables can be converted into good profit by being fed to pigs, and, when dairying is carried on, pigs are an absolute necessity.

* * * * *

The best bacon pigs are those that are well fed and rapidly grown, but not fat. They have a well-proportioned amount of lean and fat meat, possess small bones, and look nice and sleek, and have good quality. The best bacon pig is the one that is nice and smooth.

* * * * *

The use of the damp cloth in wiping the udders and flanks of the cows before milking is very important in reducing bacteria. Where this was practised in one instance the number of bacteria in the milk was 716 per cubic centimeter, as compared with 7058 per cubic centimeter where the moist cloth was not used.

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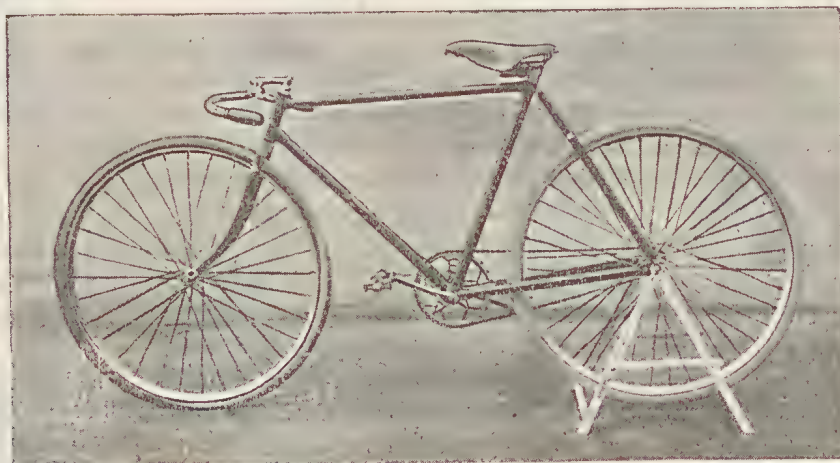
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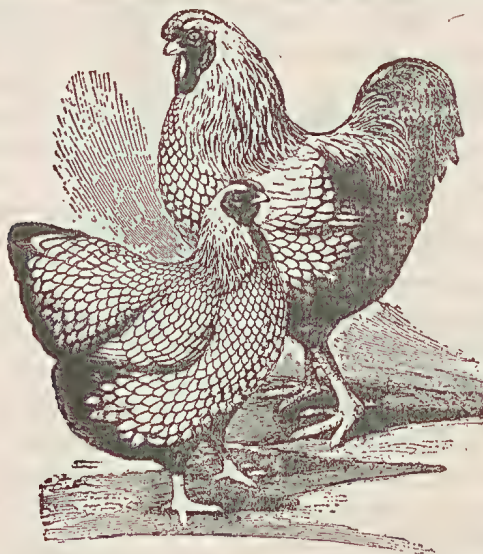


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Diseases of Fowls.

G. BRAGSHAW, in the 'Agricultural Gazette of N.S.W.'

(Continued from last Issue.)

—Egg-Bound—

Sometimes a hen is unable to lay her egg, which blocks up the passages from the oviduct. Unless she is relieved, the result must be fatal sooner or later. A hen so affected will be seen to visit the nest repeatedly without result, and will show general distress, with a depression of the wings and tail. The stoppage may be the result of contraction of the egg passage, or an abnormally large egg. If the latter, the remedy is easy; but when the former is the cause, then the matter is more serious. For large eggs, which can be discovered by an examination of the bird, the vent should be softened by salad oil, followed by an injection of the same if not effectual within an hour. Great care must be taken in handling or making an injection, for if the egg be broken the result will probably be fatal. Benefit has been derived also from

the holding of the bird above a jug of hot water, allowing the steam to enter the vent. Contraction of the vent is generally accompanied by inflammation, either the cause or the result of the contraction. This can be discerned by heat of the part and feverishness of the bird. As an internal remedy homœopathic tincture of aconite should be given. The vent and surroundings also should be fomented with a weak solution of aconite.

Dr. Greene, writing on this subject, in 'Poultry,' England, says:—

The passage of the first egg with every pullet is always a process which is somewhat prolonged, but which seldom has other than a successful termination. Apart from this, however, an occasionally and exceptionally large egg may pass successfully through the oviduct in its plastic state, but on the shell becoming hardened in its short sojourn in the cloaca, it will encounter an outlet which, though of the normal size, is out of all proportion to the gigantic ovum to which it is expected to give passage. Or, again, a somewhat similar condition arises when the egg is of the normal size, but outlet is narrow. It is a good plan to watch those birds that are about to lay. Should they visit the nest frequently during the course of the day and leave without depositing an egg, it is almost certain that something is wrong; and when a pullet is in such a

state there are three good remedies that may be tried. The first is: Take the bird up gently, and hold her so that her stern is over the mouth of a jug of boiling water, that the steam arising therefrom may get to the parts and help to relax and procure the delivery of the egg. If this has not the desired effect after an hour's rest in a quiet coop, the vent should be oiled gently with a feather, and the hen given a powder composed of 1 grain of calomel and one-twelfth grain of tartar emetic. The powder may be mixed in a bolus of food, and put into the bird's crop. If it be acting properly a marked improvement should be noticeable in the bird a few hours afterwards, while a second powder given two days subsequently will probably complete the cure. It is advisable for a while to feed the fowl sparingly on a somewhat low diet, withholding any fat-forming food, and giving lime-water to drink, after the system is rid of the powder.

(To be Continued.)

The Foolish Broody Hen.

The hen she is a foolish bird and though
she sings no lays,
She lays her eggs and favours us in other
little ways;
Belike the heroines of old, she lays her
young life down
To give us white-meat crispy fried with
bread-crumbs rich and brown.
In case she be a rooster, she alarms us
with her crow,
To warn us in our drowsy beds 'tis six
o'clock below;
But, oh, her toil is purposeless—of com-
mon sence the dregs,
Those times in stubborn hopefulness she
sits on china eggs.

Now perseverance is a trait by which
success is won
But perseverance in this line is highly
overdone;
And though the wisest of us makes an
error now and then,
For graceless repetition just commend me
to the hen.
She mounts her nest of china eggs, and
though she never gets
A solitary chicken for her patience, still
she 'sets.'
Experience may teach us of its wisdom
now and then,
But never seems successful in the teach-
ing of the hen.

—J. W. Foley, in Success Magazine.

Fighting Red Mites.

In former years, early in the season, I have soaked the roosts of my hen house with crude oil, and have had but little trouble with lice or mites. This year, however, has been an exception. Through carelessness, or laziness, before I was aware of it, my houses were literally alive with the little red pests.

First I tried my old remedy, kerosene, crude oil and crude carbolic acid. It did not seem to be of any benefit. I inquired of my poultry friends and found they were all in the same boat. I was advised to smoke the houses with sulphur. I did that, and the lice only seemed to grow fat on that treatment. The next advice was to whitewash. I mixed a barrel of whitewash and, with my spray pump, I literally soaked all parts of the houses removing roosts, drop boards, and all movable things. The next morning the lice seemed to be just as thick on the roost as ever.

I then tried smoking again with sulphur with the addition of tobacco dust. The lice seemed to increase on the roosts. Next with a torch I burned the roosts every morning, until the wood seemed to be all charred, and again they were just as thick as ever. I was advised to try boiling water which I did a few mornings with the same results.

I began to get discouraged, and bought some of the advertised lice killers. The directions reminded me of a bedbug killer I read about when a boy, viz.: A party not having got good results with the preparation, complained to the agent. The agent said the way to use it was first to catch the bug and squeeze him until he opened his mouth, then drop some of the liquid into it and he would strangle.

The lice killers were about the same; catch the hen by the legs and thoroughly dust all parts of the hen with the powder.

Now, for a person with a few hens that may be alright, but to catch and dust a hundred hens two or three times a week, to say the least, is rather trying to one's nerves and patience. Besides, I fail to see

how that would affect the mites on the perches. I tried only a few, as it was too much like useless labor.

I looked in my poultry books, and they said to keep up a constant warfare, or something to that effect, but they didn't say what to fight with—shot gun or arbitration. I concluded the authors didn't know. Then as an experiment I dusted a bunch of lice with a little tobacco dust, and was surprised to see them all die immediately. I tried the spray pump and whitewash again, and while the perches were still wet I sprinkled them liberally with tobacco dust, and the next morning the perches were all covered with lice—all dead. So I think I have solved the problem of red lice, as I haven't seen one since.

—H. U. Durfee, in 'Farm Journal.'

Green Feeding of Poultry.

D. S. THOMPSON, Poultry Expert.

The green feeding of poultry is a subject of the greatest importance. A few years ago it was not heard of. To-day it is only practised amongst the most skilled poultrymen.

The general farmer, the man who can produce the green feed, rarely thinks of it, and never practises the feeding. If he lives in a wheat district, the fowls are fed on wheat only; if in maize country, he uses that grain alone. The up-to-date poultry farmer who buys his own food supplies, purchases green feeds or their substitutes, besides the grains and mill offal necessary.

It has now been demonstrated that a very large quantity of green fodder, produced on the farm, can be profitably fed to poultry. It has generally been understood that poultry, hens included, pecked grass and lived to a considerable extent by grazing on the pastures; but when the green and succulent grass is nipped with frost in the winter or scorched in the summer, the hen ceases from pecking, and stops laying. Of course, other artificial conditions are necessary in the way of meat feeding to take the place of insect life, and turn autumn and winter conditions into as near summer as possible

and equally, if not more so, is provision of green food. This is one of the great secrets of how to produce eggs in the autumn and winter, which is very valuable to the farmer, but it is also of great importance for him to know that he can feed with advantage so much valuable bulk fodder to his fowls at such a low productive cost.

The question is constantly asked: What are the best green foods for poultry? Lucerne is certainly the best, and if the land will not grow it, try rape. All green foods should be finely chaffed, the finer the better, and the more relished by the hens.

—Lucerne.—

Lucerne is a very useful crop for the poultry farmer with suitable soil to grow it on. It is really astonishing how much green stuff can be obtained from a small patch of lucerne. The great thing is to confine the area to just the size that can be thoroughly prepared by very deep digging or forking, and unless the natural drainage is very good, artificially drained. A patch of lucerne, 15 feet square, properly sown and established, will suffice for a hundred head of poultry.

For poultry it should be as leafy as possible, and cut before it grows too long in the stem or hardens. It can be cut with an ordinary clover cutter or chaffed. A fairly large quantity can be cut at a time, and fed as required.

There have been comparisons made frequently between clover and lucerne. Both are good for poultry feeding; but lucerne, when once established, is perennial and can be cut repeatedly in the year, while clover will last but two years at most and can be cut once or twice only.

A comparison of the feeding value of lucerne and bran shows that the former is almost equal to that generally expensive mill product, which it can replace as the bulk ration of a concentrated mash.

Wheat Bran—Protein, 15.4; Carbohydrates, 53.9; Fat, 4.0.

Lucerne Chaff—Protein, 14.3; Carbohydrates, 42.7; Fat, 2.2.

But while the analysis of bran will be invariably found very close to these figures, lucerne has been known to contain even higher nutriment than bran. Plenty of green lucerne fed throughout the autumn will keep down chicken-pox.

Where lucerne cannot be grown, it can usually be purchased for less than bran, bulk for bulk. If purchased as dry chaff, if steeped in warm water and allowed to stand overnight, it turns almost as soft and green as when freshly cut. But if lucerne hay or chaff is used, care must be taken to see that it is well saved and leafy. The harsh stalky, badly-saved hay sometimes put on the market would be useless.

The next in importance as a poultry food is clover, but it cannot be grown in the same quantities as lucerne, and usually only in cool climates.

—Rape.—

Rape is a first-class green food for poultry, and grows freely in most districts. Poultry are very fond of it, and while it is not of nearly so much feeding value as lucerne, it makes the best of alteratives and correctives which can be fed to laying hens. There is no need to dose them with Epsom salts if they are fed with plenty of rape. It is broad leaved (like the leaves of a cauliflower), and should be cut up as fine as possible to save waste.

—Other Green Foods.—

Other green foods of less value from a poultry point of view, but very serviceable in lieu of something better, are green oats, young maize plants, or amber cane, which require to be cut up as fine as possible and boiled well before being mixed with the mash. 'Fat Hen', a common weed, makes a good green feed as a substitute for something better. In fact, fowls denied natural green stuff will eat anything which is green.

—'Agricultural Journal' of N.S.W.

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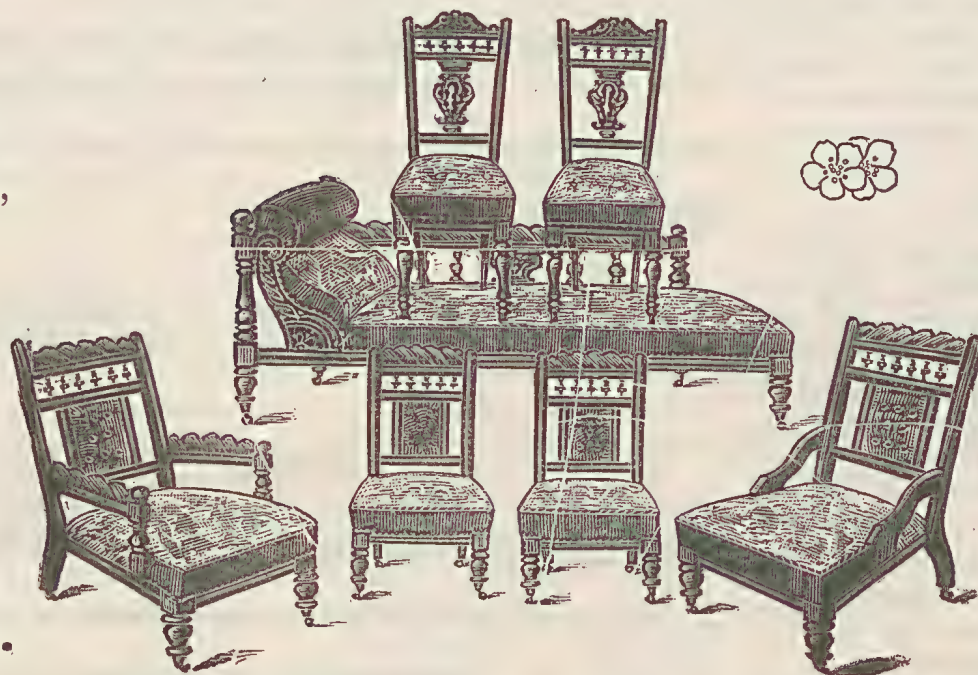
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In our little girly's garden
Grew all sorts of posies;
There were pinks, and mignonette,
And tulips, and roses.

Sweet peas, and morning glories.
A bed of violets blue,
And marigolds, and asters,
In girly's garden grew.

There the bees went for honey;
There the birds sipp'd the dew;
And there the pretty butterflies,
And the lady-birds flew.

And there among her flowers,
Every bright and pleasant day,
In her own pretty garden,
Little girly went to play.

The Names of the Months.

THEIR ORIGIN AND MEANING.

Although the days of the week take their English names from the Saxon, the months retain their Latin names, and the following gives in brief their origin:—

— January. —

January, from Janus, the deity whose temple in Rome was always open in time of war, and closed when the nation was at peace. The Dutch called it Laaw maand (frosty month), and the Saxons Wulf monath (wolf month). After the introduction of Christianity, it was called Se Aeftera geole (after yule).

— February. —

February, from Februa, a name of Juno, from februo, to purify. The Dutch called it Spokkel maand (vegetable month), and the Saxons Sprote cal (sprout kale), and subsequently Sol monath, or sun month.

— March. —

March, from Mars, the Roman patron deity. The Dutch name was Lent maand

(lengthening month), because the days were noticed to grow longer. The Saxons had the same name eventually, though at first they called it Hreth monath (rough month) from the boisterous weather.

— April. —

April, from aperio, to open, from the breaking open of leaf buds. Old Dutch name, Gras maand (grass month; Saxon Easter monath, from the fact that Easter generally fell in it.

— May. —

May, from Maia, mother of Mercury, or magus, from mag, to grow, meaning the growing month. The old Dutch name was Blou maand (blossom month), and the Saxon Tri milchi (three milks), because from abundance of feed cows could be milked three times a day.

— June. —

June, from Juno, wife of Jupiter and queen of heaven. The old Dutch was Zomer maand (summer month), and the Saxon Sere monath (dry month).

— July. —

July, from Julius Caesar, who was born in it, the name being given by Marc Antony. Before that, it was called Quintilis, or fifth month. The old Dutch name, Hooy maand (hay month), and the Saxon Maed monoth (meadow month) because in it cattle were turned out to feed.

— August. —

August, from Augustus Caesar, it being the month in which he had all his successes and triumphs. The old Dutch name was Oost maand (harvest month) and the Saxon Weod monath (weed month), from the rapid growth of all kinds of vegetation—weed having a wider meaning than we give it.

— September. —

September, from septem, seven, it being the seventh month of the year, when the latter began in March. The old Dutch called it Herst maand (autumn month), and the Saxons Gerst monath (barley month), or Harfest monath (harvest month).

— October. —

October, from octo, eight, as in September. The Dutch name was Wyn maand, and the Saxon Win month, both meaning wine month, or month of the vintage.

— November. —

November, from novem, nine, as September and October. Old Dutch name, Slaght maand (slaughter month), the month when beasts were killed to be salted for winter use. The Saxons called it Blot monath (blood month), for a similar reason, though a more general name was Wind monath, from the prevailing gales.

— December. —

December, from decem, ten. See September, etc. Old Dutch name, Winter maand, and Saxon Midwinter monath both of which explain themselves. Christian Saxons altered the name to Se Aera geola, or ante-Yule—the month preceding Christmas.

Tonque Twisters

Cricket critic.

She sells sea shells.

Six thick thistle sticks.

Flesh of freshly fried flying fish.

A growing gleam growing green.

The sea ceaseth and it sufficeth us.

Peter Piper picked a peck of pickled pepper. If Peter Piper picked a peck of pickled pepper, where's the peck of pickled pepper Peter Piper picked?

Try repeating each of these sentences quickly half a dozen time.

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WIT AND HUMOR.

— Pat and the Electric Light. —

An Irishman was asked by his friends how he liked London.

"Shure," said Pat, "I only had one objection. They left the candle burning all night in the bedroom in the hotel."

"Why didn't you blow it out?"

"I couldn't, begorra; it was in a bottle."

— Not on the Menu. —

My friend said, "Some fried oysters,"

I said, "Fried oysters, too."

The waiter looked embarrassed,

And said, "That's something new."

I'll go out to the kitchen

And do my best for you.

But, if I'm not mistaken,

We've no fried oyster stew."

— Nasty. —

Widow (tearfully): "John was such a hand to worry when things didn't go right. He simply wore himself out doing it. Why, the very last day he lived he was fretting because the price of wood had gone up again."

Friend (trying to say something consoling): "It is too bad—too bad, madam! But your husband is over all his troubles at last. He won't have to worry over the price of wood where he is now."

— A Faux Pas. —

He thought he'd propose at his ease,
So devotedly fell on his knees;

But I think that he quenched her
Love when he drenched her,
For just then he happened to sneeze!

— Overheard at the Semaphore. —

Kitty: "I see by the papers that a man was fined £5 for eating fruit in a train."

Olive: "My Goodness! I didn't think eating fruit in a train was unlawful. Why I might have been fined myself, for when going up to Adelaide the other day I——"

Kitty: "Don't get excited. This man was caught sucking the 'date' off an old ticket."

— He Got Off. —

An Irish recruit was once brought up for breaking into barracks—that is, getting over the wall instead of entering by the gate.

"But, Murphy," said the officer, "though you were late, you should have come in by the gate."

"Praise, yer honor," said Murphy, "I was afraid of waking the sentry."

Goodly: "What is grander than a man you can trust?"

Cynicus: "One who will trust you."

— Poor Smith. —

"To-morrow," sighed the simple maiden, "is my birthday."

It was a hint that young Smith knew would be expensive to understand. But the simple maiden was heiress to 100,000 dollars, was decidedly comely, and they were engaged. So he decided to plunge.

"Any one could guess your age, so simple are your ways," he said, "and I'll show how I'll guess it. Tomorrow you will receive a bunch of crimson roses, and in that bunch there will be one rose, my pet, for every year that you have lived."

That night Smith wrote a note to his florist, ordering the immediate delivery of eighteen roses to his lady fair.

The florist read the order, and said to his wife: "Here's young Smith wants us to send a bouquet of one and a half dozen crimson roses to Park lane, W. He's been a good customer lately. Throw in an extra dozen for luck."

Smith's presents were returned within the hour, and to this day he can't imagine why the engagement was broken off.

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The Ladies' Page

An Empress's Toilet.

Tsi Hsu, Dowager Empress of China, has always been extremely vain of the good looks to which her rise to power would seem originally to have been due, though one might, perhaps, be excused for doubting the fact to-day. The cosmological facilities of her palace to-day afford an outlet for the beautifying energies of no less than nine young ladies of the imperial suite.

Her Majesty is rouged every morning regularly after breakfast until her cheeks flame delicately against the creamy composition with which the rest of her face has been coated. A huge mirror is then rolled to the couch upon which the source of all power in China reclines.

Tsi Hsu studies the effect of the labors of her young ladies so critically that it is said to be necessary occasionally to rouge her twice or thrice before the technique of the operation quite realizes the imperial ideal. The monotony is made less tedious by song, the narration of Court gossip, and not infrequent applications of her Majesty's rattan cane to sensitive surfaces.

The pencilling of the eyebrows and eyelashes has had to be abandoned, owing to the growing weakness of the old lady's sight. But the lips continued to be camouflaged. The slightly stubborn growth of hair on chin and upper lip is dealt with after the fashion of those Western artists who obliterate black eyes by the application of heavy paint.

No attack of illness could be too severe to justify the slightest omission of cosmological detail by the several ladies concerned with the Empress Dowager's toilet. Though Tsi Hsu be so ill that her day must be spent in bed, she is rouged, pencilled, and massaged, without rising to dress, just the same as if she were up and about.

Years of study have made her Majesty such a perfect mistress of the language of her educated subjects that her conversation is the model upon which the stylists

of the Court circle form themselves. Also she is in the habit of having her own way in all things, perhaps more often than any other woman in the world.

Why Hair Goes Grey.

The real reason why people's hair grows grey is something which puzzles the doctors not a little.

The colour of the human hair is due to the deposit of pigment in the interior of each hair, and greyness follows the loss of this pigment. That is self-evident; but the puzzle is, what causes the pigment to disappear?

—The Colouring Pigment.—

Some have believed that it is due to the drying of the hair, which causes a shrinkage of its fibres, and so allows the entrance of air bubbles, the refraction of light from which then gives the white appearance.

The proof which is adduced in support of this belief is that if a grey hair is put into the receiver of an air-pump, and the air is then exhausted, the colour of the hair may return more or less completely.

—Destructive Bacteria.—

Metchnikoff, the famous bacteriologist says the cause of greyness is the penetration into the hair of wandering cells, resembling the white blood corpuscles. These cells, assisted by other cells, the aggregation of which makes the hair, seize upon the granules of pigment and destroy them.

Nearly every one has read of instances of the sudden bleaching of the hair—even in a single night—under the influence of fear, grief, or some other intense mental emotion. That such cases have occurred is undoubted, but the explanation by either of the theories above mentioned is difficult.

—No Cure for Grey Hair.—

There is no certain cure for grey hair so far as is known (so scientists say). The use of curling irons is said to retard its formation; perhaps, if Metchnikoff is right, by destroying the activity of

the cells which consume the pigment.

Sometimes in the young, even in children, there is one grey lock, like an island in the sea of normally coloured hair about it. This is usually a family peculiarity, occurring in one generation after the other.

—'Scraps.'

Why His Marriage was a Failure.

He regarded children as a nuisance.

He did all his courting before marriage.

He never talked over his affairs with his wife.

He never had time to go anywhere with his wife.

He doled out money to his wife as if to a beggar.

He looked down upon his wife as an inferior being.

He never took time to get acquainted with his family.

He thought of his wife only for what she could bring to him.

He never dreamed that there were two sides to marriage.

He never dreamed that a wife needs praise or compliments.

He had one set of manners for home and another for society.

Flesh, Fish, Digestion.

Foods easily digested: Meats easy to digest are mutton, venison, hare, sweetbread, chicken, turkey partridge, pheasant, grouse, beef tea, mutton broth, and beef.

Hard to digest: Pork, veal, goose, liver heart, brain, lamb, duck, salt meat, and sausage.

Fish easy to digest: Turbot, haddock, flounder, sole, roasted oysters, and trout.

Hard to digest: Mackerel, eels, salmon, herring, halibut, salt fish, lobster, crabs, mussels, and cod.



Several Aspects of the Protection of Our Native Birds

[By Walter W. Froggatt, Government Entomologist, in the
'Agricultural Gazette of N.S.W.']

(Continued from last issue.)

The question then arises, who is to administer an effective Fauna Protection Act? And this question has been answered by the only two agricultural countries that have taken up the protection in a practical manner—the Kingdom of Hungary and the United States of America.

They have solved the matter by making this necessary protection a branch of the Department of Agriculture; and the officials of the Departments, in conjunction with the officers of the Forestry Departments, look after birds and beasts, and study the many side issues that come up through a more or less artificial condition when absolute protection is enforced. On the 1st of July, 1885, the United States Congress established a section of Economic Ornithology, under the direction of Dr. Hart Merriam, to carry out investigations, to include the food habits, distribution, and migrations of North American birds and mammals, in relation to agriculture, horticulture, and

forestry. In 1896 this branch became a division, under the broader title of the Division of Biological Survey.

In the offices of this division at Washington there are thousands of stomachs of birds which have been examined and tabulated, so that the food habits can be determined, and their value as insect destroyers or otherwise demonstrated. Maps are prepared showing the migrations and range of the different birds and animals; and, while the protection of useful ones is advocated, the methods of dealing with noxious ones are also closely studied.

The Hungarian Central Office for Ornithology was instituted in 1894, by Count Albon Caaky, Minister of Public Instruction; and, after having been an appendage of the Royal Museum for some years, it was transferred to the Department of Agriculture.

In 1901 Ignác Darányi, Minister of Agriculture, issued a Circular Decree, which is one of the most complete and well thought-out Bird and Animal Protection Acts in existence.

The writer recently met Dr. Otto Herman, who has charge of the Office for Ornithology, whose untiring energy has made it such a successful movement; for not only does he protect all the useful birds, but he shows the people all through the country their value. A map has been drawn up in which are marked 150 stations, scattered all over Hungary, where professional ornithologists record the migration of as many species as possible; and, besides this, there are 1,300 State foresters, who record the movements of the commoner species.

Artificial nesting-boxes were found so useful to all the birds that nest in holes in trees, that a factory for making them was started; and two years ago (1906) the Minister ordered the Hungarian Central Office for Ornithology to present a scheme to supply these artificial nesting-boxes to the State forests, comprising 5,000,000 acres; and this work is now in hand.

It will therefore be seen that the matter of bird protection on a scientific basis is no new thing, and has received a great deal of attention in different countries.

However, in going into the matter we will find that there are many unnoticed influences to effect the distinctive fauna of any new country like Australia.

There is not the least question that, with the advance of civilisation, when cities spring up, the forest disappears, and where the farmer ploughs the land the natural herbage vanishes, so that the thousands of little creatures, from insects to birds and animals, die out or move on as their food supply fails; for it is not only the gun of the hunter that kills. Now, if you destroy the natural food of any bird or animal, it may, if of an adaptable nature, find some of the crops grown by the farmer or gardener just as suitable for food as the original supply; so that which was under natural conditions, if not useful, at least a harmless creature, now becomes a pest.

(To be Continued.)

Those desirous of joining the Royal Society for the Protection of Birds should communicate with the Hon. Secretary—Miss S. Ware, 112 South Terrace E., Adelaide. Any person may become an associate on paying the sum of sixpence (children under 14, threepence), as a registration fee, and agreeing to the objects of the Society. Associates may become members on agreeing to pay not less than one shilling annually.

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Sutherlandia Frutescens
Viola Cucullata Alba
Double Balsam
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our hands not later than the 15th. of the
month.**Answers to Correspondents.**

—:O:—

'Wager,' Wallaroo.—The pine tree
attained 700 years as a maximum length
of life; 425 years was the allotted span
of the silver fir; the larch lived 275
years; the red beech, 255; the aspen,
240; the birch, 200; the ash, 170; the
elder, 145; the elm, 130. The heart of
the oak begins to rot at about the age of
300 years. Of the holly, it is said that
there is a specimen 410 years old near
Aschaffenburg, Germany.'Gardener's Wife,' Uraidla.—Chilblains
are an inflamed condition of hands, feet,
or ears occurring in persons of defective
circulation and poor health. Under-
feeding, poor clothing, and a strenuous or
scurfulous condition favor their appear-
ance, and they can be brought on by tight
boots, warming cold hands at a fire, and
many simple ways. They must not be
confounded with 'chapped' hands, feet, or
lips, though the treatment is much the
same. Preventive treatment is good food
tonics, and proper clothing, with regular
exercise and cold or nearly cold bath
every day. Wide boots and thick hose
must be worn, and garters abandoned.The three stages are—(1) The skin
becomes purple and itchy; (2) blebs form
on the discolored area, which becomes
painful; (3) the blebs break, and leave
an ulcerated surface. In the first
stage, rub with hazeline snow or cream, or
paint with tincture of iodine, or apply a
mixture of whisky and soap every even-
ing. In the second and third stages, use
boracic ointment or some similar pre-
paration, and cover with wool, or paint
with compound tincture of benzoin.**Questions and Answers.**QUERIES.—Readers are invited to send
us queries on any matters on which they
want information. No charge is made for
the insertion of questions, but the following
conditions should be borne in mind. 1.
One question only should be written on
one sheet of paper. 2. One side only of the
paper should be written upon. 3. Querists
must forward their names and addresses
(not necessary for publication).ANSWERS TO QUERIES.—The queries
sent us will be answered by men who know
the subjects, but at the same time we shall
be glad to receive answers to any published
from readers who can give the information
asked for. Our aim is to get our readers
to help one another, and no one is better
able to help a small gardener than another
owner of a small garden who has gained
experience in dealing with the many diffi-
culties that have to be faced.**CARNATIONS FROM SEED.**M. M., Unley Park, writes:—I have
some very fine Carnation seeds (mixed);
shall I want soil specially mixed to sow
the same in, or will ordinary soil do if I
manure slightly?Carnations may be grown in ordinary
garden soil, but it is just as well to take
a little trouble with them and prepare a
suitable compost. This should be of loam
leaf-mould, and sand; do not use manure.

* * * * *

THE SLUG PEST.'Disheartened,' Parkside, inquires for
a reliable method of ridding his garden
of slugs. He says he has tried laying out
traps such as damp bags, boards, cabbage-
leaves, etc., but though he has caught
hundreds by this method they seem to be
getting more numerous than ever.We would advise the free distribution
of freshly slacked lime amongst your
vegetables as late in the evening as you
can manage it. You will find that after
every application the pest will be con-

siderably less, and in addition a little lime is beneficial to the soil. For the flower garden lime and soot should be used.

* * * * *

NITRATE OF SODA FOR ONIONS.

'N.H.,' Wallaroo Mines, writes.— Please say how much nitrate of soda to the square yard for Onions, and how best applied.

You may use from one to two hundred-weight of nitrate of soda to the acre, according to circumstances. If you work this out you will find that the larger quantity will work out to about half a pound for every eleven square yards.

EDITORIAL.

WE felt bound last month to open our editorial article with the words wet, wet, wet. This month we feel obliged to go one better and say wetter, wetter, wettest. If tillers of the soil for flowers, fruit, and vegetables found it difficult to get on to the ground because it was too wet, surely during the month of August it became so saturated with water that the workers eyes would even brim over with moisture at the sight of the ground. This is not as it should be, and adds yet another argument to the persistency with which we have been advocating the necessity of systematic drainage of garden and orchard land. We know of several gardeners who do adopt a system of drainage, but there are many more who think the time and labor not worth it, if, indeed, they think anything at all about it, which is very doubtful. The majority seem to think that if they can prevent floods and washaways that is quite good enough, but are sadly disappointed when after heavy rains they find the land so sodden that it is impossible to get on the ground to work it. They remind us of the old-time joke about the nigger who was found sitting in a disconsolate condition inside his hut while the rain was driving through his roof. When remonstrated with by a caller who asked him why he did not mend his roof, laconically replied, 'Can't; it's raining.' Then, to the rejoinder,

'why don't you mend it when it is not raining,' said, in the same laconic fashion, 'Don't want it then.' That is about the position held by many tillers of the soil. The fact that during the busy month of August many workers have lost both time and money through their ground being saturated gives opportunity for again impressing upon cultivators of the soil the necessity of putting in drains. Earthenware pipes are the most effective, but failing the cost of that system, stones are a very good substitute. Cut the ditch out about two feet deep, make a small groove at the bottom to take the pipes as straight as possible, cover the pipes with stones, or leave them out if they are not easily obtainable, and then fill in, care being taken all the time to see that the pipes have a sufficient fall to carry off the water easily and rapidly. Under this system there should be but little loss of time and labor under the most unfavorable conditions, and the drainage will soon pay for itself.

† † †

New additions to orchards should have been completed a month ago to give the young trees a fair start with their root growth, but trees planted even this month will live and get along fairly well for an early start to grow next year. If it is too late for planting it is also well beyond the time for pruning, which should now be completed, the cuttings being gathered up for burning, to give plough a chance to get in as soon as the ground is anything like fit for turning in the green stuff. Sufficient attention is not paid to cleaning the trunks of trees. It is too much bother to scrape them all carefully, but it pays. Anyway the trunks and limbs should be roughed over to shed off some of the worst of the insect hiding bark and rough surfaces. Then spray with a reliable spraying oil. The spray pump is just as much a part of the equipment for orchard cultivation as the plough, or the cultivator, although we regret to say that many orchardists do not seem to think so. If they did we should not hear so much pessimism about codlin moth and the hundred other enemies which take away the profit of

hard work. The warmer weather will come quickly now, and the pump must be kept in thorough going order. Not left anywhere, anyhow, until the time comes to use it and find everything wrong, and no means of putting it right without a lot of hard words, money, and loss of time. There is too much hand to mouth business about many cultivators. Their short noses are stuck up in the air of indifference, and they will not look further than the end of it.

† † †

While on the subject of diseases the potato blight that is now the talk of most people whether growers or consumers, is brought to mind and it may as well be mentioned that if growers would be more particular about their plants there would be less disease. Disease is generally the result of neglect or careless cultivation. Producers are not sufficiently observant. They are all after money. Their eyesight is diseased with silver blight, which blinds them to the necessity of a little extra labour in keeping the plants well cared for and their seed clean, anything will do, shove it into the ground somehow, anyhow. Quantity is what is looked for. So many tons to the acre, never mind what the quality may come out like. The soil, too, is very often neglected. It seems to be forgotten that diseases are harboured as much in weeds and dirty ground as they are in the plants that are grown there. How few cultivators regard the use of salt and lime as purifiers to the ground. Lime is advocated and generally acknowledged by everybody as a good destroying agent for germs of diseases in animals (including mankind), then why not for vegetable life where dirty and neglected conditions prevail. Scientifically it is recognised that what can be done in the animal world can also be applied to the vegetable Kingdom, and so the argument goes on that if fungus diseases find a congenial habitat amongst neglected trees, and in neglected land lime is the agent to use to purify the conditions. It is only when such a calamity as potato occurs to make consumers pay heavily for it that they begin to look around for remedies, instead of making prevention a principle. The

news that was published recently that potatoes were being sold at the famine price of £25 a ton in the West is the kind of whip that is needed to scourge men on to do their common duty of cleanliness. Any ordinary grower of potatoes can tell at a glance whether his seed potatoes are clean and free from disease. But when he happens to be careless in the matter, which is too often the case, he would rather run the risk of a diseased crop than throw out his seed potatoes.

Received.

DESTRUCTIVE INSECTS OF VICTORIA.—We wish to acknowledge the receipt of a splendidly produced hand-book on the above—or rather Part IV on that subject. It is written by Mr. C. French, F.L.S., F.E.S., Government Entomologist and contains beautifully coloured plates of the following insects:—Fruit Flies Wattle Scale, Apple-Tree Destroyer, Common Bean Butterfly, Huebner's Case Moth, Holy Bug, Dark Spotted Swift Moth, Green Hanging Moth of the Apple, Elephant Beetle, Orange and Fig Tree Borer, Dark Green Grass Caterpillar, Apple Gum Bimbia, Lesser Wood Case Moth, Pinara Grub of the Apple, Red Gum Tree Weevil, Bot Fly, and Mottled Cup Moths. In addition to the illustrations a full description of each insect and its habits is given, together with notes on the methods of its prevention and extermination—a work which should prove invaluable to the Australian fruit-grower. Ornithology, too, has a prominent place in this handy little volume, beautiful colored plates of Masked Wood Swallows, Babblers, Nar-keen Kestrels, Magpie Larks, Owllet

Nightjars, White Throated Thickheads Flame-Breasted Robins, Harmonions Shrike Thrushes, Welcome Swallows, Blue Wrens, Yellow-Rumped Tontits, Australian Bee Eaters, and White-Browed Babblers having been produced, and the economic study of birds, both injurious and useful, will no doubt prove of great value to those engaged in rural pursuits. The publication also contains much other useful matter for entomologists and practical orchardists.

A Test Election.

On page 39 of this issue will be found a ballot slip which is inserted at the request of the Effective Voting League of South Australia. The object is to demonstrate to the electors of the State the ease with which an election can be conducted under the proposed system, the simplicity and practicability of which were so amply demonstrated in the recent General Election in Tasmania. A glance at the ballot slip will show that twelve candidates are supposed to have been nominated for a district returning six representatives to Parliament. There are

now four recognised political parties in the State—Australian National League Labor Party, Farmers and Producer's Political Union, and Liberal and Democratic Union, and each of these parties has the names of three of its most prominent men inserted on the ballot paper. Our readers are invited to cut out the ballot slip and fill in (in the blank space before each name) the order of their choice or preference—that is, to place the figure 1 against the name of the candidate they like best, 2 against the one they like next, 3 against the next, and so on for the whole twelve, always remembering that they can vote for as few or as many as they desire, and that a ballot paper will be invalid if the same figure be inserted more than once on the paper. Having filled in the slip it is then to be posted not later than Thursday next, September 2, addressed: Effective Voting League, Box 504, G.P.O.

The counting of the votes will begin at 7 p.m. on Friday, September 3, at the Exchange Room, Town Hall, Adelaide, and will be open to the public. The results will be published in all the newspapers in which the ballot slip appears. For the convenience of country

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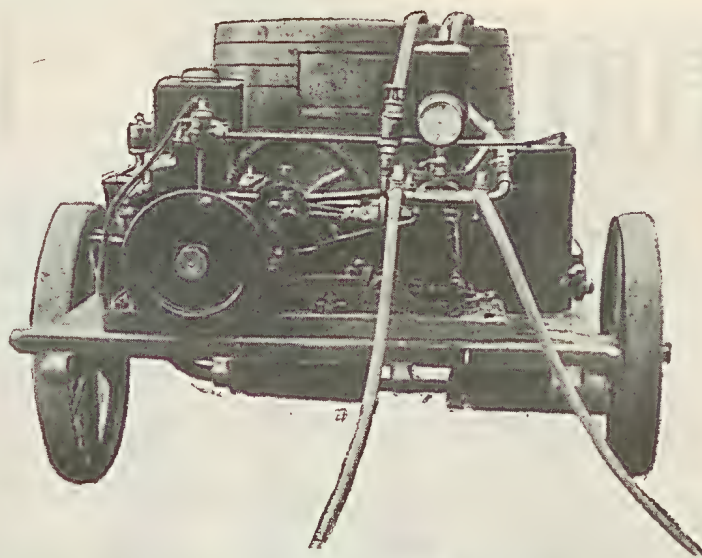
friends the different stages of the counting and the complete results of the test election will be shown by limelight during Show week, when a public meeting will be held in the Lady Colton Hall, Hindmarsh Square, Adelaide, on Wednesday September 15, at 8 p.m., Mr. K. W. Duncan, M.P., presiding. The League desires that all its friends and supporters as well as every reader of this paper should join in making the election a success by not only voting themselves, but by getting as many as possible of their friends to do likewise.

Show Fixtures.

	Sept.
North-Western (Crystal Brook) ...	8
Kapunda and Light (Kapunda) ...	8
South Australia (Adelaide) ...	15 to 18
Burra (Burra) ...	22
Gawler (Gawler) ...	22
Moonta (Moonta) ...	29
Port Wakefield (Port Wakefield) ...	29
Morphett Vale (Morphett Vale) ...	30
	Oct.
Hamley Bridge (Hamley Bridge) ...	1
Streaky Bay (Streaky Bay) ...	7
Midland (Saddleworth) ...	8
Yorke town (Yorke town) ...	13
Belalie (Jamestown) ...	13
Penola (Penola) ...	13 & 14
Lake Albert (Meningie) ...	14
Kingston (Kingston) ...	19
Stanley (Clare) ...	20
Strathalbyn (Strathalbyn) ...	22
	Nov.
Western Australia Royal Annual	2 to 6

Secretaries of Shows are invited to forward date of fixtures for insertion.

A. W. Dobbie & Co., Gawler Place, Adelaide, makers of all kinds of Spray Pumps; call attention to same in their advertisement. Spray Pumps are a speciality with this well known firm, and A. W. Dobbie & Co. have probably spent more time and money in experimenting with latest ideas and inventions for perfecting Sprayers, and confidently assert that the growers find them up-to-date, reasonable in price, and made as perfect as mechanical skill, combined with a knowledge of fruitgrowers requirements, can make them.



"BAVE-U." POWER SPRAYER.

The Bave-u Power Sprayer.

A SUCCESSFUL DEMONSTRATION

In order to demonstrate to the orchardists and fruitgrowers of this State the efficiency of the Bave-u Power Spraying Machine, Messrs. G. A. Prevost and Co. (the local agents) provided a public exhibition at the garden of Mr. A. J. Jackman, of Crafer's, on Tuesday, August 24, in the presence of a large number of our leading fruitgrowers. The trial proved conclusively that the manufacturers, Messrs. Russell and Duncan, of Victoria, make no idle boast when they claim that the introduction of the Bave-u Power Sprayer will revolutionise spraying operations over here. The Bave-u is the first of its kind manufactured in the Commonwealth, and it is undoubtedly a great improvement on former spraying machines introduced here. The outfit consists of a 3 h.p. engine of the simplest type working with benzine, and mounted on a solid base with the pump, which is made specially for high pressure. It has no buckets or leathers, and requires scarcely any attention. Provision is made for two hoses, but four may be used; the pump, however, works equally well with one. If during spraying hoses be shut off for any reason, the mixture escapes through a valve back to the barrel. The pressure can be instantly varied by adjusting the escape valve. A jet from the pump keeps the mixture

constantly agitated. The weight of engine and pump, with fittings is but 3 cwt. The machine is mounted on a specially low-built orchard jingle running on strong iron wheels with broad tyres (as illustrated), and is easily conveyed from tree to tree by one horse. The agents claim that a day's spraying of 1200 gallons costs only 2/6. The 3 h.p. engine was worked at various pressures—up as high as 180 lbs. and—spraying with Nicholls' fungicide was carried out effectively, not even Mr Jackman's huge walnut trees (some of which must reach a height of nearly 40 ft) being beyond the reach of this powerful sprayer. The Bave-u Power Sprayer should prove itself a boon to fruit growers, as the work of spraying their trees three or four times during the season is simplicity itself with this efficient sprayer, and it will, we think easily do the work of two hand pumps thereby saving the work of three men. In addition to spraying the engine can be put to many other uses, such as wood-sawing, chaff-cutting, etc. For the convenience of the city people desirous of seeing the Bave-u at work Mr. Prevost provided a conveyance in the shape of a drag drawn by five spanking greys, and refreshments were also supplied. Visitors to the Show interested in spraying should make a point of seeing the Bave-u, as the agents will have one at work on the grounds.

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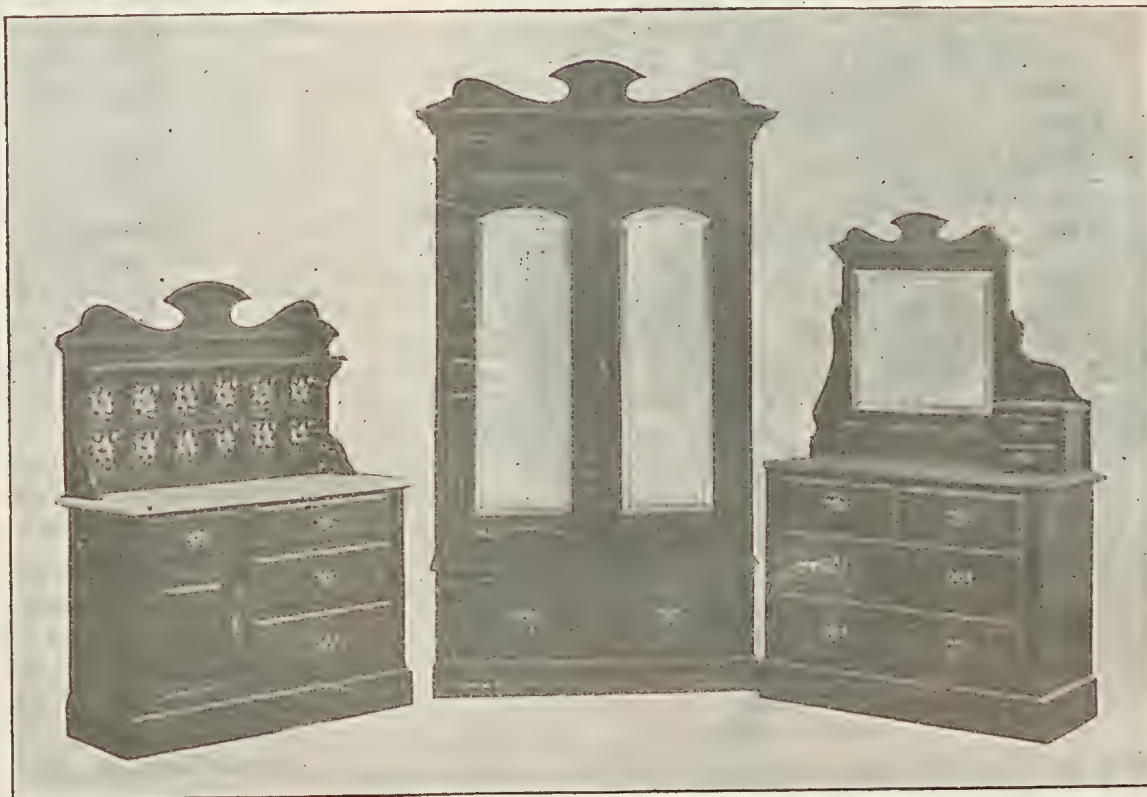
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 head £6 18/6
 Go Carts from £1 18/6
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 &c., &c., &c.



STRIPED VERBENA.

The Flower Garden.

Notes for the Month.

September is the first month of our beautiful spring. It is the time when the patient gardener begins to see the results of his planning and plotting and planting. Failures of course there must be, but they only make the enjoyment of success more keen.

— Lawns. —

Where lawns of buffalo grass are to be planted the present month is the best possible time for the operation.

In preparing the soil, which is really the most important point, a good quantity of manure should be incorporated with it to a depth of 18 in., and the whole should be trodden firmly before the surface is levelled, so that there may be no subsidence after the grass is planted. The roots of the grass may be either dibbled in at 4 in. apart or small trenches opened straight across the ground in which to

lay them. The first method is the most expeditious, and if the roots are put in deep, leaving an inch of stem above the surface, there will be no fear of failure. In all cases the grass should receive one good watering as the work proceeds.

— Bulbs. —

Many kinds of bulbs are now at their best, and will need careful stapling to keep them in good condition as long as possible. Nothing is more displeasing to the eye than seeing bulbous plants neglected and laid down by the wind.

Summer-flowering bulbs, including gladioli, tuberoses, lillies, and tigridias should be planted this month; and all require deep, rich soils.

— Chrysanthemums. —

Commence propagating chrysanthemums both by cuttings and a division of the roots. If for pot culture two cuttings should be put in each 3-in. pot, so that when rooted sufficiently to be put into

larger pots they may be separated without injury to the roots. These plants require a soil of a fairly rich texture, but it is often made too good, the result being that it is sometimes difficult to keep the growth in due check, and the plants whether in pots or in the borders become overgrown; the stems and foliage are out of all due proportion to the flowers they produce. Too much water during the middle stages of growth is partly the cause of them becoming overgrown. A moderate supply of water until the buds are fairly formed is best, after which plenty of water and liquid manure are necessary for the production of first class flowers.

— Roses. —

The rose garden will require particular attention during this month. Like many other plants, roses are much improved by disbudding. Any or all buds that form in the centre of the tree or bush should be rubbed off. This prevents crowding and throws all the strength of the plant into the roots that remain. Where roses are to be grown for exhibition purposes one bud only should be left on each strong shoot, and comparatively few flowers should be allowed to develop on each plant. When the flowers begin to open it is a good plan to tie thin white paper over each to protect them from bad weather, as the least blemish in these flowers weakens the exhibit and the coloring is not in the least affected by being covered or protected for a few days. Should aphides appear on roses they should be dealt with immediately by spraying; a solution of soapy water is effectual, and this is made by dissolving 2 oz. of common soap in a gallon of hot water, and using it whilst at a temperature of 130 deg. Fah. All roses should now be mulched with short, well-decayed stable manure.

— Summer Annuals. —

The main sowings of summer annuals should be made early in the month. They may be raised without artificial heat; the beds should be formed in frames, using a fine rich sandy soil, keeping the glass over them until the plants are up.

Hardy annuals may be planted to the



SUTHERLANDIA FRUTESCENS.

end of the month, and others sown in the open borders for succession flowering.

— Shrubs. —

Choice fibrous-rooted shrubs, as azaleas, rhododendrons, and boronias for hill country will now require mulching; first they should be dug around, but the soil must not be distributed nearer the stems than the tips of the branches, as much mischief is done by disturbing the mass of fibrous roots nearer to the stems.

— Camellias. —

Camellias, which succeed remarkably well when planted out in the hills, should now be put in. They require deeply trenched ground, with a good quantity of well-decayed manure, mixed evenly with the soil, and a slight shade should be provided the first summer; four stakes driven in round the plants, and a piece of bagging stretched over them is quite sufficient, as it is the mid-day sun which does the mischief.

Repotting Plants.

The season for active growth having again arrived, the work of repotting will now be in operation, and perhaps a few remarks on the subject may be of service to those who have not yet had much experience in the matter (writes a correspondent in an exchange). On looking into glass-houses, I am almost invariably struck with the fact that the pots used are very much larger than those I employ

for plants of the same size, and the extra size of pot by no means adds either to the ornamental or useful character of the plants—in fact, with tender-rooted ones, it is far easier to keep a plant healthy in a small pot than a large one. I am well aware that gross-growing and vigorous-rooting plants, such as Chrysanthemums, grow much larger in large pots than in small ones, yet the most perfectly-formed blossoms, even in such a plant as this, are gathered from plants grown in rather small pots. If anyone is anxious to get a correct idea of the size of pot he should employ, I would advise him to go to the nearest florist's establishment, where he will find that the plants are so large and perfectly developed that the wonder is how the small amount of soil could have supported such a growth; while in the beginner's glass-house one frequently finds the pots employed and the amount of soil, lying around the roots in a cold, inert state, out of all proportion to the requirements of the plant.

In repotting, except in cases where the plant is being grown on as rapidly as possible, it is not necessary to use a pot much larger than the one it came out of, as by shaking away the old soil there will be space for sufficient new material to support free growth, and firm potting or plenty of ramming of the soil into the pot makes all the difference in getting a larger amount of food into a pot of a given size.

Be sure that the pot is clean and the crocks for drainage free from dirt, and place a layer of rough soil over the crocks to keep the fine material from choking the drainage; then, if the ball of roots is surrounded with really good soil, pressed in so firmly that the whole mass unites as one, the water will penetrate slowly, but evenly, and the plant will make a firm growth, for the result of loose soil in a larger pot than is needed is to encourage a sappy growth, and this, not having the proper stamina in it, does not bring the quantity of flowers it ought to perfection.

In repotting any kind of plant the operator will do well to be guided by the condition of each individual plants roots

as he takes it in hand, and decide the size of pot according to the quantity of roots to be got into it.

An Acre and a Half of Violets.

Many gardeners throughout the hills (writes a correspondent of the 'Tiser') supplement their yearly takings considerably by cultivating odd pieces of land about their gardens with flowers. During the winter season especially there is a good demand for flowers, and violets particularly are favorites in the market. One gardener, Mr. W. Walker, of the Third Creek, Norton's Summit, has an acre and a half under violet cultivation alone. Even lovers of this flower can have little idea what a beautiful picture this presents, while the perfume coming from such an extensive bed baffles description. It is probably the biggest bed of violets in the State. There are three varieties of single blue, but probably pride of place must be given to the King violet. Also there are three colors of double varieties, white, blue, and dark blue. The bed has already produced £30 this season, and though 50 or 60 dozen bunches are gathered every day or two, the wealth of blossom is as great as ever.

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VIOLA CUCULLATA ALBA.

Description of Flowers.

May be Sown during this Month.

The Violet.

There is perhaps no flower that is a more general favorite than the Violet, which, like the Pansy, has been derived from the Viola, of which there are a great number of species. The only ones, however, which are cultivated by horticulturists are the garden types which have been derived from the indigenous British sweet violets. Great improvement has been effected in this charming perfume flower, in increasing the size of the bloom, and introducing more varied color into them, without diminishing the characteristic perfume. The single varieties, in particular, have been improved. The double-flower violets have been produced from a variety of the common violet, the Neapolitan. The double types, though not as hardy as the single kinds, are also popular garden plants, flowering freely under suitable conditions. The flowers are delightfully fragrant, the perfume in many varieties resembling that of the wallflower.

If fine flowers and plenty of them are wanted, the plants must be cultivated, and not neglected, as they sometimes are. The violet delights in fresh soil; it will not thrive in sour or exhausted land. It

revels in decayed leaf-mould; but this valuable plant-food cannot often be obtained. A sandy, turfy-loam, with about one-fourth part of well-rotted cow manure mixed with it, makes an excellent compost. The plant is fond of lime, and if there be none in the soil a little should be added; it tends to keep down worms and insects, to keep the soil sweet, and helps to cause vigorous growth. Poor stunted growth causes the plants to become a prey to red spider; and this involves attention in the way of sulphuring and syringing. If good soil and an abundance of water can be provided, almost any fairly open situation will suit, but a partial shade protection from north winds and very hot suns is generally better. Division of the roots and by runners are the common methods of propagation, but cuttings taken off in the spring make plants less liable to form runners, which, of course, weakens the parent plant.

Violet-roots are often a foot or 18 inches long, so give them room to run well down into the soil, and be sure that they find something good at the bottom. They are not particular as to the condition of the manure, but the richer the better—only bury it deeply so that the roots, though not in contact with it at

first, will, in their search for it, go down well out of the way of summer droughts. If your ground is light, tread it in firmly before planting, and keep it firm afterwards. After planting, give a good soaking of water, and the work is done. By the time the warm weather comes your plants ought to be beyond the reach of mischief. Nevertheless, keep watch, and, if very dry, water occasionally, and, above all, spread some cool, well-rotted dung over the surface of the Violet-beds. This will keep the plants free from red spider, and save them from scorching.

Fragrance in the violet is of greater importance than even size or color. Length of stem, its stiffness and suitability for working-up into bouquets, and also freeness of blooming should be considered in selecting varieties. The sweetness of the violet is very evanescent, few flowers so much so. A bunch of blooms in twenty-four hours after being gathered has already lost the best part of its perfume, when two days old its smell is suspicious, and on the third day it should be thrown away. Yet, if a box in which fresh violets have been packed be promptly closed up, the delicate violet fragrance may be detected there in all its purity many weeks after.

Violets should be gathered as early in the morning as possible, and their stems at once placed in water. If the flowers are to be sent away for some distance each bunch should be hooded over with a sheet of paraffin paper for protection, and to confine the fragrance. Our florists, when packing the flowers, usually lay the bunches close together in single layers on flats, which rest on cleats in the packing boxes, but sometimes shelves are used in which round holes have been cut to hold one bunch each.

Violet plants bloom freely for two seasons, after which they become weak and straggling in habit, and the flowers produced are poor and few. The plants should be renewed after the second year, fresh soil being necessary to ensure success.

The popularity of the violet is as old as the daffodil or the rose. In ancient mythology it was dedicated to Venus.

When Athens was at the height of her glory bunches of violets were exposed for sale in the market-place at all times of the year. From the days of Homer the beauty and fragrance of the violet have furnished a favorite theme for poets. To Shakespeare it was a type of modesty and maidenhood, and Scotland's poet agreed with the Bard of Avon, for he also wrote 'The Violet is for modesty.'

A Popular Half-hardy Annual

Balsam, or Impatiens, derives its name from a peculiarity in the elastic nature of the seedpod, which discharges the seed when ripe, or when touched. Balsams are one of the most popular and beautiful of our half-hardy annuals. They produce rose-like blooms of varied colors in great abundance, and remain in flower for a considerable time. Balsams are suitable



DOUBLE BALSAM.

for outdoor cultivation, and also make beautiful pot plants, and form striking objects for the decoration of the conservatory or greenhouse.

Many of the Balsams obtainable from most nurserymen and seedsmen are notable for their large size, perfect doubleness, and symmetry of form, with the most brilliantly striking and

exquisitely delicate and beautiful coloring. A first sowing should be made in August or September, and afterwards sowings up to February. The plants should stand at least 1 ft. apart, and water must be freely supplied in dry weather. They require a rich soil and plenty of sunshine. If the surface soil is mulched to a depth of 2 in., it will keep the ground moist, and also afford nourishment to the plants.

After the season of blooming is over, if the old plants are to be preserved they should be cut back and the cuttings put in; but if not wanted, they should be at least kept until the cuttings are rooted. If the old plants are kept over they may have a season of rest, kept partially dry; before they are started into growth they should be shaken out of the old soil. Old plants or cuttings should have the points of the shoots pinched out occasionally to make the specimens bushy.

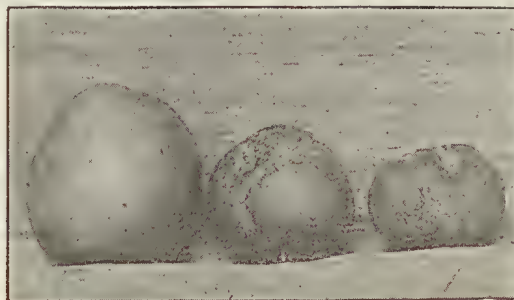
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- "Commonwealth," Mounted on 40 gal Barrel £7 17s. 6d. A powerful pump, no leather packings, working parts brass. Large steel air chamber adjustable stroke, 3, 4, or 5 inch.
- "Excelsior," in 24 gal. Stout Galvanised Iron Tank, £5 10s. The old favorite. Equally good for large and small gardens. Double action, brass pump, perfect automatic mixer, latest double cyclone nozzle, 12 ft. hose.
- "Little Giant," Most Popular Pump, £2 17s. 6d. We offer this as the best for small fruit and vegetable gardens. Double action brass pump automatic mixer, 6 ft. hose and single nozzle in 8-gal. painted galvanised iron tank.

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Early Cucumbers, Jewel of Koppitz, Short Prickly, 6d per packet	Egg Plant or Brinjal, 6d packet	Fordhook Early Water Melon, 6d packet
Yard Long or Snake Beans, 6d per packet	Early White Vegetable Marrow, 6d packet	Capsicums and Chillies
	New Zealand Spinach, with directions, 6d packet	Rocky Ford, Long Island Beauty, Extra Early Hackensack, and other Sweet Melons, 6d packet
	Cape Gooseberry	

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GROWING,**

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young tendrils to the poles at first, but as soon as they begin to run they will twine around the sticks naturally without any artificial help. They require plenty of water during the hot weather, and should be liberally mulched.

BROCCOLI.

Seed may be sown in small beds or seed-boxes, and the seedlings transplanted when the young broccolis are large enough. Sow thinly in little drills.

CABBAGE,

The Improved Heading Chinese Cabbage is a good variety for present sowing being both vigorous and rapid. The leaves are large light green, and of a mild, delicate flavor.

CAPE GOOSEBERRY.

This is a very branching perennial, growing about 3 feet high, bearing bladder-shaped pods, each enclosing one juicy orange-yellow fruit about the size of a cherry. The fruit is valued for dessert and for preserves. It is very productive.

Sow in September or October, and plant out in October or November in rows 3 feet apart. A rich sandy loam, well drained, deeply ploughed, and sub-soiled is best for the purpose. When the plants are about 6 inches high, thin out to about 3 feet apart, and put up a light trellis to train them on. The plants which have been taken out may be planted in some other part of the garden. Before planting out, clip all the leaves off except the top bud.

CRESS and MUSTARD.

Sow for succession about once a fortnight in light rich soil in drills half an inch deep and 8 inches apart, and sow thickly.

CUCUMBER.

We dealt fully with the Cucumber in our last issue. More seed may be sown in order to keep up a succession.

This will be about the time to plant out the Cucumbers raised on heat (as advised in our July issue), but see that they are well protected from frost.

EGG PLANT.

This excellent vegetable was described

The Vegetable Garden.

Operations for the Month.

Judging from the wet weather experienced in July and August (up to time of writing) it is probable that we may have a late spring.

This is one of the busiest times of the year with both vegetables and flowers in sowing, planting, pruning, lawn-making, walk-making, &c.

With a good start in the spring, the chances are in favor of a good vegetable supply in the summer.

Whilst there is yet time a sufficient extent of ground should be prepared on which to carry on a succession of vegetables; not that it need take a very extensive space in which to grow all the vegetables needed in a fair-sized family if proper economy be carried out. The great point to be kept in view is, never to allow any part of the vegetable garden to remain unoccupied longer than can be avoided. Use abundance of good dung for most vegetables, and, if possible, use it in a well-rotted condition, without the best part, or the soul of it, so to speak, having been washed away by rain.

ASPARAGUS BEAN.

This is also known as Yard-long or Snake Bean. It has remarkably long, slender, light green pods, which are used in the same manner as French Beans. This is a good month to make the first sowing, and in doing so follow the cultural directions given below for the French Bean. The plants grow about six feet high, and require sticks, or will grow well against a wall.

FRENCH BEANS.

It is now time to commence sowing French Beans again. Any good garden soil will grow them, but the best crops are obtained from good loams or alluvial soils. The drills should be a few inches deep, varying from 2 to 4 inches, according to the weather and state of the soil. Make the rows 3 feet apart, and put the seeds at least 6 inches apart in the rows.

A good manure for this popular vegetable is a light dressing of farmyard manure, 4 to 6 cwt. of superphosphate, and 1 cwt. of sulphate of potash (or 4 cwt. of kainit) per acre. The use of 2 cwt. of nitrate of soda per acre gives a very substantial increase of crop.

Should the soil be very dry, water it well before sowing. The beans should be gathered as they become fit—that is, while young and tender; and unless it is desired to save some seed they should not be allowed to ripen, as thereby the bearing powers of the plants will be considerably lessened.

The varieties of French Beans, including Butter Beans, are very numerous, so it is advisable for each grower to choose what best suits his requirements.

RUNNER BEANS.

These are summer plants, and may be sown from September to March. The rows for these should be 4 or 5 feet apart, and before planting, poles about 6 feet long should be set up along the rows at a distance of three or four feet apart. Around each pole plant each 6 or 8 seeds, 2 inches deep, and when they come up thin them out, leaving four of the strongest plants to each pole. It may sometimes become necessary to tie the

in the July issue of this journal. More seed may be sown if required.

LETTUCE.

If plants are available, say three or four inches high, plant out in good rich soil, which has been trenched and well manured, in rows a foot apart each way.

MELONS.

Melons will grow, after a fashion, on most soils, but a fairly rich, loamy soil, resting on a stiff subsoil, is about the best suited to its nature. The cultivation of melons is similar to that of cucumbers. Mark off the land in 6-foot squares, and at each intersection make a hole 2 feet in diameter. If the soil be not, naturally rich, mix with it a compost made up of well-rotted stable manure, sheep or poultry dung, wood ashes, bone-dust (if procurable), and a little salt. Fill up the hole with this prepared soil, and sow five or six seeds in it in a ring. Half an inch is deep enough for the seeds. When they are up, take out all but two plants in each hill. Stop all lateral runners as soon as they show fruit, and the secondary runners must be pinched back to the fruit in the same manner. If the weather is dry, give the beds a good soaking with diluted liquid manure about once a week. Water every evening sufficiently to damp the soil right down to the roots, but no stagnant water must lay about or the plants will not thrive.

As the vines begin to run, it will be noticed that they do so with greater rapidity, and the runners look most healthy and succulent, when they make their way over some particularly rich patch or over a manure heap. The reason for this is that the rootlets emanating from the vines find their way into the rich humus, and extract nourishment, which is thus conveyed direct to the young vine. It is the same with pumpkins and cucumbers; hence, when preparing for melon-sowing, it is always well to spread a light coating of farmyard manure over the soil the vines will probably follow.

To ascertain when a melon is ripe, tap it with the knuckles, and, if a hollow drum-like sound is heard, the melon is

ripe. This only refers to water melons.

Good varieties are — Black Spanish, Cole's Early, Ice Cream, Fordhook Early, and Mammoth Champion. Rock Melons we can recommend are—Yellow Cantaloup, Early Hackensack, Rocky Ford, Long Island Beauty, and Emerald Gem.

Pie melons are cultivated in the same manner as the above. They are very hardy, and the melons keep a long time. The flesh when stewed and made into pies is an excellent substitute for apples.

MOUNTAIN, or ORACH SPINACH.

This is also known as Tree, Cape, and French Spinach. The leaves are used as Spinach. Sow in drills 2 feet apart. When the plants are 3 to 4 inches high, thin out to 18 inches apart in the rows.

OKRA, or GOMBO.

Make a small sowing in rows from 2 to 3 feet apart.

The green seed pods, while young and tender, are used in soups, &c., to which they give a thick, jelly-like consistency and fine flavor.

PUMPKINS, SQUASHES, TROMBONES and VEGETABLE MARROWS.

These are all cultivated in the same manner and sown at the same season of the year as melons and cucumbers. The only difference is that they require much more space, owing to their more vigorous growth. The holes should be 8 feet apart, instead of 6 feet, and only one plant of pumpkins in each. In the case of custard marrows, two plants may be left.

RADISH.

Sow either in drills or broadcast, and when the plants are fit thin out to about two inches apart.

RAPE.

Make a small sowing of Broad-Leaf Essex Rape in the same manner as Mustard and Cress. It is a very wholesome vegetable; the leaves are used as Spinach, and also as a salad.

TOMATO.

More seed may be sown. This excellent fruit was fully dealt with in the August issue of this journal.

SEA KALE.

Continue blanching, as advised in our last issue.

NEW ZEALAND SPINACH.

Try some seed of the above, which will be found a very valuable Summer Spinach. It grows freely and produces leaves of the greatest succulency in the hot weather if watered. It is used in the same way as the other Spinach.

Sow the seed in a bed, 4 inches apart, and when the plants are 3 inches high plant out in light rich soil in rows 3 feet apart each way.

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Sowing Seeds.

One of the most common mistakes connected with this matter, especially in the case of vegetables and salads, is that of sowing too much seed at a time, and not making provision for successional crops, one sowing taking as much seed as should have lasted the season. Thus all the ground is cropped at once, and no space left for other crops to follow. The consequence is that there is a feast of good things; followed by a long fast.

Now, in cropping a garden, whether it be a small one or one of large extent, there is nothing like sketching out a rough ground plan beforehand, and marking on it the exact position and number of rows required of each crop, and also the crops to follow.

One often finds the owner of a garden who can always have plenty of vegetables and salads from the same ground area that his neighbour finds quite inadequate to meet his wants. This is, in a great measure, due to the greater amount of skill brought to bear, not only in growing the crops well, but, above all, in getting them in the very nick of time, so that there is always something fit for present use, and plenty coming on.

We often find a seed-bed of Lettuce, or Cabbages, in a small villa garden that would have supplied plants enough for the largest establishment, and if this one sowing had been divided into three, at intervals of a fortnight or three weeks, a prolonged supply would have resulted; but, the seed being sown at one time, three parts of the crop were useless.

The same with Peas, Beans, Cauli-flowers, and other crops; one good row at a time will supply a small family with succulent vegetables, but if treble the quantity be sown, it is pretty certain that for two-thirds of the season the owner will get Peas and Beans as hard as bullets.

A seed bed half-a-yard square will give enough plants to supply the garden of any ordinary family with abundance of vegetables and salads.

We post 'The Australian Gardener' direct for 3s. 6d. per annum.

Vegetables under Fruit-Trees.

Although we have known many instances where heavy crops of fruit were obtained from land planted with vegetables, we have seen few cases where even fair crops of vegetables have been grown under fruit-trees. The causes of failure are generally insufficient manuring, planting the wrong kinds or wrong varieties of vegetables, and not allowing sufficient space for the plant to make up in leaf expansion what the organ loses in impaired functional activity from deficient light.

Early Potatoes will do fairly under trees. They can be planted earlier than in the open, the branches of the tree giving shelter from frosts. Then the plant will have extra time to make up for slow growth.

Late Brocoli also do well, as they do their principal growing while the leaves are off the trees. The branches afford them shelter.

Early Turnips will succeed, too, and salads in the summer-time.

Hoeing between Crops.

Hoeing should not be delayed till the weeds are nearly fully grown, as many people think, judging by the appearance of their gardens; the work should be carried out as much as possible when the weeds are quite small.

If the whole of the surface of the ground between any kind of crops be lightly stirred with the hoe, not only the weeds showing plainly, but many only just pushing through will also be destroyed.

There is yet another important advantage attending this comparatively light work. Many soils, especially where clay exists in large or small quantities, are apt to bind badly in wet weather, and this is followed by cracking in dry, hot weather. Keeping the surface loosened with a hoe prevents the rapid loss of moisture by evaporation and the consequent cracking, and also admits the warm, moist air to the roots of the plants.

It will thus be seen that the more often the hoeing is repeated the better it will be for the crops—in fact, it is advisable to use the hoe three or four times early in the season rather than delay this operation till the weeds have gained a strong foothold, when merely hoeing them up will not be sufficient to destroy them.

Summer Lettuce.

There can be no question that Lettuce to be crisp and succulent require to be grown without check from the first sprouting of the seed until pulled up for use, and the best way to ensure such a condition during the summer months is to sow the seed where it is to remain and avoid transplanting, for, while plants are getting over the check occasioned by removal, those left undisturbed will be nearly fit for use. The best plan is to sow rather thinly in drills one foot apart, and, as soon as the plants are large enough to handle, to thin them out partially, and by pulling out the largest for mixed salads as they become fit for use a succession of crisp Lettuce may be kept up with very little trouble. The main thing is to have a deeply-cultivated, well-enriched piece of ground dug up some considerable time before it is wanted for sowing, in order that the surface may get mellow and friable, for on loose, freshly-dug soil it is useless to expect Lettuce to grow freely in dry weather. A sowing of White Cos and All-the-Year-Pound Cabbage Lettuce made about once a fortnight will yield a constant supply, and if the same course is adopted with Radishes and Mustard and Cress, there need be no fear of the salad supply running short.

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Cultivation of the Potato.

(Continued from last issue.)

From 'Queensland Agricultural Journal']

Following are the results of some experiments carried out by Mr. H. C. Quodling, Inspector of Agriculture, when manager of Westbrook State Farm. The manures were Superphosphate, Bonedust, Blood, and Kainit, each at the rate of 4 cwt. per acre, and the weight of seed planted in $\frac{1}{4}$ acre plots 178lb. These manures yielded 716lb., 704lb., 712lb., and 722lb. respectively.

One plot was unmanured, and planted with cut potatoes, yielded 751 lb. per plot, and in the last plot the potatoes were planted whole and the yield was 708 lb.

The best manure then, for potatoes, is a mixture of farmyard manure and some artificial. For instance, 16 tons of stable manure will produce a larger crop than the most remunerative dressing of artificial manure; but, employ a mixture of 8 tons of stable manure and 3 cwt. of nitrate of soda, or an equivalent quantity of sulphate of ammonia, and a far greater yield will be obtained—in fact, such a dressing gives the greatest yield and the most remunerative results of any. If stable manure is unavailable, any artificial dressing for potatoes should contain nitrogen, phosphorus, and potash. Omit one of these (as has already been shown), and the result will be a poor crop. The omission of nitrogen will cause the greatest loss, and that of potash the least.

— Soils. —

Of all crops grown, the potato is the one which shows the greatest content of potash in the mineral constituents withdrawn from the soil. Hence the well-known value of soil derived from granitic detritus for potato culture. In it, we have abundance of potassium silicate, derived from the decomposing felspar and slowly set free in other forms, for the uses of the plant. Where ground has been annually cropped with potatoes for many years, without a rota-

tion, it is mainly owing to the potash having been used up that the soil is not liberal in its return of tubers.

Generally, it may be said that potatoes may be grown on any soil, but that those grown on clay soils are waxy and of bad quality; light, granitic soils produce nice mealy potatoes; and fertile loams yield the best tubers—best both in quality and quantity.

— Seed Potatoes. —

When we speak of seed potatoes, we mean potato tubers which are planted, whole or cut, to produce a crop. Potato seed is a very different thing. The potato is a *Solanum*, which produces flowers and seed vessels. The latter appear in the form of a small green apple or tomato, which contains a quantity of small seeds, and it is by sowing many thousands of these seeds that new varieties are produced, in very limited numbers compared with the enormous numbers of seed sown, by scientific growers, who make the production of new kinds of potatoes a business, and a very profitable business it has often proved to these experimenters. Here, however, I am only dealing with the tubers or so-called seed potatoes.

There is a good deal to be studied in the selection, care, and treatment of seed potatoes, and many farmers take far too little care of them. When the summer crop is dug, the small potatoes are hauled to the barn, and either left in bags until the next planting season comes around, or else in a large uncovered heap on the floor. Then, when planting time has arrived, it is considered time enough to overhaul the heap, bags, or pit, and pick out the rotten ones. Too often the seed is found in a matted condition, owing to the potatoes not having been turned. This necessitates the whole mass being stirred up—a process which breaks off the majority of the shoots. All this means loss—a loss which can easily be avoided by being careful to turn the seed over occasionally, say about once a fortnight, or, at any event, a fortnight before planting, by which a gain in growth may be brought about. New shoots will then form, and they will be up as early as

those which were planted immediately after the last turning. An important point is to plant no potatoes except those which have sprouted. This was conclusively proved to be correct at the Queensland Agricultural College, when one plot was planted with sprouted, and another with unsprouted seed. The former came up uniformly with scarcely any misses, whilst the latter plot showed an irregular growth and wide vacant spaces. In trials which were carried out for the Irish Department, at 67 centres in 16 counties, there was an average increase of 2 tons per acre from sprouting, and in the four preceding seasons the increase due to sprouting ranged from 1 ton to 2 tons 13 cwt. No stronger testimony could be desired.

Now, concerning the size of seed tubers. Opinions differ as to whether small or large seed gives the best results. A trial was made in England to settle the question. Three rows of equal length and with an equal number of setts were planted with Northern Star potatoes as follows:—

Row No. 1—38 setts, weighing 3lb., produced 54 lb. of potatoes

Row No. 2—38 setts, weighing 4lb., produced 64lb. of potatoes

Row No. 3—38 setts, weighing 7lb., produced 92lb. of potatoes.

Assuming that the seed cost 1d. per lb. and the produce sold at 1d., we find that row 1 returned $\frac{4}{3}$; row 2, $\frac{5}{1}$; and row 3, $\frac{7}{1}$ —clearly a great gain in favor of the larger setts. All were planted on the same day, in equal ground, and all had the same amount of cultivation.

(To be Continued.)

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The Orchard.

Operations for September.

— Citrus Trees. —

Orange, lemon and other trees of the citrus family may be planted. Although the early autumn is the best time in which to plant them, where a plentiful supply of water is at command through the summer September is a suitable month. As soon as the trees are in place they should be mulched with new stable litter, as this keeps the soil at a cool temperature through the hot weather. The soil cannot be too carefully prepared for the orange tree; deep soil with good drainage is the chief essential to success. Whether the ground selected for planting be river alluvial or ordinary paddock land, it is necessary to break up the whole to a depth of 18 or more inches, and as the trenching proceeds to evenly incorporate as much decayed stable manure as is available. Failing a good quantity of this, bone manure would answer for mixing with the subsoil, coarse bonedust being far better for the purpose than fine stuff. So far as the surface is concerned it is necessary to provide well decayed stable manure to fork in close to the trees to give them a start.

— Pruning. —

Pruning should be carried on with dispatch, and as a thorough system of spraying is the only hope of the orchardist against the codlin moth pest a system of pruning must be adopted to suit the use of the spraying machine. This means an open-headed tree, with ample space be-

tween the branches — a rather low spreading habit, which will make it easy for fruit gathering as well as for spraying and pruning. The height of such a tree should not exceed 10 ft., and it would be better a little lower if the nature of the tree will allow of such a habit.

— Scraping. —

All pruning being finished, attention should be paid to the stems and main branches of deciduous trees. The rough bark that forms shelter for the larvæ of insect pests should be carefully scraped off and the whole surface afterwards washed with lime. This acts beneficially in several ways; it keeps the sap of the trees cool in hot weather, prevents the lodgment of insects, and also the growth of moss and lichen. It is important to keep the hose busy during the month, and in large orchards the horsehoe should be used at least twice, as then the ground will be kept quite free from weeds, as they are easily destroyed when young.

— Grafting. —

Grafting may be carried on through the month. In the case of old, healthy trees of inferior varieties of apples and pears, it is the best plan to cut back the branches, allow new branches to form in the summer, and then put the grafts on the best placed shoots the following spring. In this way the graft and stock will be the same size and fit perfectly, and the stock will not receive so severe a shock as when denuded of its young growth, except that which finds its way through the grafts. The lopping off of branches checks the stock but little, but when the new shoots that form are kept rubbed off, as is usually done with newly-grafted old stocks, the check is very severe. This method of grafting is well-known and is as follows:—Putting the grafts in the ends of the stumped branches; shaving the lower end of the scion into a triangular shape and inserting it between the bark and the wood. The grafts unite readily in this way, but the stock does not recover so well as when the first method mentioned is practised. Inferior varieties of grape vines may be grafted with approved sorts through the month. The work is done thus—the soil is taken

away from the stems to a depth of about 10 inches, the vine is cut off 4 to 6 inches below the surface, and the grafts either wedged into the top or slipped into a cut on the side of the stem. The scion or graft should be tightly tied in position, one eye projecting above the surface, and the excavation refilled with soil.

— Strawberries. —

Where strawberries are grown it is important to weed the beds and to spread mulch around them. The best material for this purpose is stable litter from which the short stuff has been shaken. This acts also as a manure, as the rains clean the straw and carry the manurial elements into the soil.

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Scarlet Nonpareil Apple Tree at Mr. Vear's Orchard, Burwood.

Planting Fruit Trees.

A most remarkable experiment in planting fruit trees has been made at the Woburn, and also at the Harpenden Bedfordshire, Experimental Fruit Farms as well as at other places. From the last report of the former, it would appear that fruitgrowers have been for centuries wasting time and labor on careful, elaborate planting, which the report now declares to be quite unnecessary to success.

It is commonly thought necessary to prepare a large shallow hole, spreading out the roots in all directions, and arranging them near the surface with a slight upward turn at the ends, and then sifting in the soil with many precautions. This method of planting was tried, with that of crowding the roots into small holes, and ramming down the earth. The experiments were made not only at

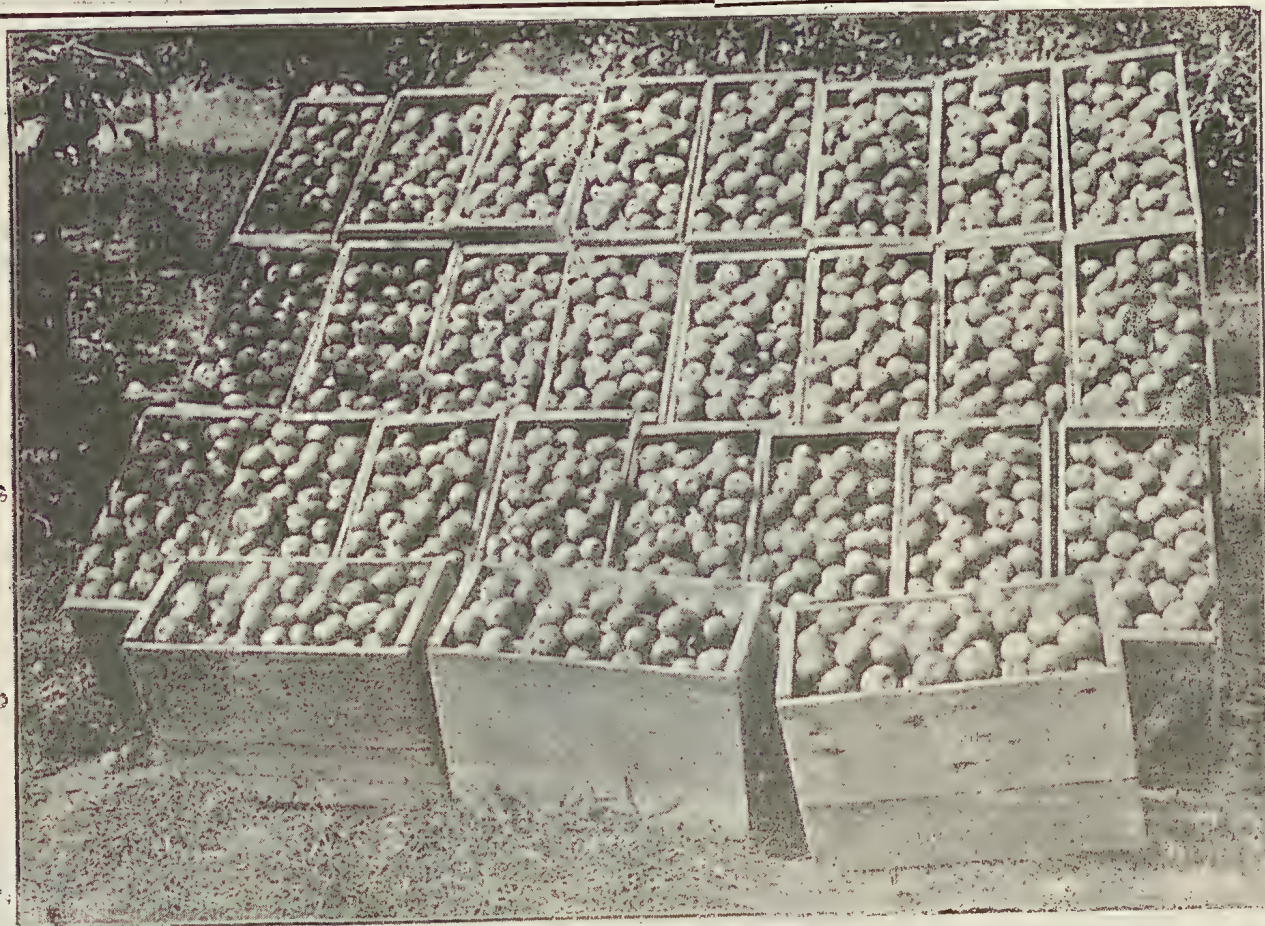
Woburn, but at Harpenden, Bedford, and other places, and 59 per cent. of the sets showed in favour of ramming, 27 per cent. showed no difference, and only 14 per cent. were against ramming.

There can, of course, be no question of the statements made in the above report, however they fly in the face of the generally accepted systems of tree-planting. It happens, however, that our own experience, to some extent, bears out what is claimed for the system of digging a post-hole and ramming the earth round the plant. This is precisely what we did three or four years ago with a young acacia tree brought from Barcaldine. The tree not being needed, we made a hole close to a fence-post stuck the tree in, regardless of the position of the roots, and rammed the soil back against the post, thus jamming the tree in rammed earth. To-day, that young plant is a finely proportioned tree about 20 ft. in height growing in full luxuriance.

It may well be that the results of the Woburn experiment will not find favour with orchardists either in the old country or here. Nevertheless, it is certain that many will make experiments for themselves, as we have done. The 'Agricultural News' of Barbados, in commenting on the above results, says, in reference to the following statement, viz that—

'Examination of the trees shows that ramming has led to a copious development of fibrous roots. Direct experiments showed that the fibrous and small roots produced in the nursery before lifting play no great part as roots during the subsequent life of the tree; the important point is to induce fresh root formation the ramming does this more rapidly than the orthodox method of planting. No harm was done, and sometimes even good resulted, when the old roots were deliberately damaged before planting.'

* Curators of botanic stations, especially



A Recent Yield of 27 Cases obtained from the Apple on preceeding page

would be well advised to make experiments, if only on a small scale, similar to those described. In order to test the application of the Woburn results to the planting of oranges, limes, mangoes cacao, &c., in these islands, it would be sufficient to set out a short row of each kind of tree, alternate trees in the rows being planted according to the old and the new methods, respectively. Where space is not limited, these trees need not be regarded as part of the permanent crop, but may be dug up later, in order to compare the effects of the two methods of planting upon the development of the roots.'

—'Queensland Agricultural Journal.'

The advantages of green-manuring for the nourishment of the potato crop have become recognised, and very good results are being obtained by the system.

Manuring of Orchards and Vineyards.

Mr. C. J. McCarthy, at a recent meeting of the Clara branch of the South Aus. Agricultural Bureau, read a paper on this subject to the following effect:—Most of the orchards and vineyards in this district are from eight to fifteen years old, and are in their prime, producing some good crops, both in quality and in quantity. I make bold in saying that this cannot last much longer. It does not seem reasonable to expect that the land will, even with careful pruning and good cultivation, yield good crops and support the trees or vines unless we put something back into the soil. I believe, with a liberal supply of manure applied to the soil at the right time, our high standard of fruits will be maintained if not increased. Trees and vines must

be kept in a healthy condition, and fairly vigorous in growth. Now, if we have a heavy crop one season there will be, as a rule, little or nothing on those trees or vines the following one. Nature provides this rest, as it were, for them to build up strength enough to produce another crop the next season. With the help of manure I am sure we will get more uniform crops each season. In 1903 we noticed some of our Cleopatra apple trees, after bearing a heavy crop, sickly and stunted in growth, some limbs showing die back. Having some well-rotted stable manure, we gave those trees a good dressing of it, spreading it out well from the base of the tree, and ploughed it in fairly deep. This gave good results, and the trees have borne several good crops since, and now look as strong and healthy as the others. We make it a practice to give any small or stunted tree a good dressing every season, and in time will

build them up to the same size as those adjoining. Like many other good things there is not enough to go all round of stable manure. Therefore we will have to choose the next best. To find that out it will require some practical experience. If we ask our experts they say, 'Oh! Climatic conditions, variations in the soils, &c., so try for yourself.' Good bone and phosphate, no doubt, are suitable to most soils where there is a good rainfall and, in my opinion, the best way is either to drill it on the top of the ground before the plough, or plough the land fairly deep and drill it in before the land sets. This should be done in the late autumn or early winter, so that the heavy winter rains will dissolve and convey it in a liquid state down to the roots. In most gardens or vineyards of any size there are to be found poor patches, and those are the parts I would recommend growers to first try to bring to the same standard as the more favored places. It is the good average crop of anything that always pays best. We hear and read a lot about green manure, and no doubt it looks alright on paper; but I doubt very much if it will ever take the place of the dry article. If gardening is going to be a profitable business we will soon see the drill in as general use among the trees and vines as a fertiliser as it is on the farm at the present time. I may state that we manured the greater part of the orchard and vineyard last season with artificial manure, mixing equal parts of bone and blood, adding one-fourth potash, and and drilled in about 3 cwts. to the acre. Although we had record crops of pears and grapes, and both trees and vines made good growth, I am not prepared to say definitely how far they benefited, as it takes more than one season to derive the full strength from those manures, but we anticipate good results for the coming season. The paper was discussed at some length. Bonedust was favored for orchards and vineyard, to be drilled in instead of being put more thickly in the furrows in the middle of the rows. About 3 cwts. per acre was recommended; too much manure will cause rank growth. August was considered the best time to apply manure.

Prevention of Foliage Injury in Spraying.

For a number of years it has been a problem with pathologists to find some successful way of treating the peach with fungicides in order not to injure the foliage. Some of the standard fungicides often cause complete defoliation. For this reason it has been found difficult to control a number of serious diseases affecting the peach by any of the ordinary treatments. This year it was discovered that a sulphur wash made by combining lime and sulphur, with no other heat than that produced by the slacking of the lime, gave a preparation which was not injurious to peach foliage, and which prevented the scab, and reduced peach-rot to 10 per cent. on the sprayed trees, whereas unsprayed trees had 75 per cent. of the disease. This fungicide, further, completely prevented leaf spot fungi and produced no injury whatever, either to foliage or fruit. While this preparation has been previously used in winter, when the trees were dormant, this is the first time it has been tried on trees in active growth, with the success as indicated. —Year Book of the U.S. Dept. of Agriculture.

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Interesting Orchard Notes.

Persimmons have been added to the increasing list of fruits that may be successfully exported beyond Australian ports.

* * * * *

Packed in wood-wool, a Rutherglen vigneron has this year been successful in keeping grapes in cold storage over a period of 13 weeks.

* * * * *

The proper way and proper time to drink wine is at meals. When taken with food the fruit acids in wines aid and promote digestion.

* * * * *

Wine plays an important part as a temperance agent. The wine-drinking people of Europe are the most sober and temperate people in the world.

* * * * *

A New South Wales grower was recently successful in landing Persimmons in excellent condition at Colombo. The fruit was sent as ordinary cargo.

* * * * *

The New South Wales Department of Agriculture have purchased an old orchard property in the Dural district, at a cost of £800, for experimental purposes.

* * * * *

All over France and Italy, where practically every man, woman, and child drink more or less wine every day, the use of strong liquors, which are responsible for drunkenness, is very small.

* * * * *

No weeds must be allowed in the garden at this time of the year, as they are robbing the trees and plants of both the water and plant food that are so essential to them at this period of their growth.

* * * * *

The continued wet weather experienced has its advantages as well as its drawbacks, for while being annoying and expensive to the orchardist who has several men idle it gives the subsoil a thorough soaking, so in a general sense it may be said that the orchardist who cultivates his soil well will have all the necessary moisture stored in the soil to carry his trees through the summer in good condition.

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BEE = CULTURE.

Bees in Relation to Flowers and Fruit-Culture.

By Isaac Hopkins, Apiarian, in Bulletin 18 of N.Z. Department of Agriculture.

I. IN RELATION TO FLOWERS GENERALLY.

(Continued from previous issue).

—Mechanism of Flowers.—

Darwin and others have proved that 'cross fertilisation is a most important factor in the continued vitality of any species of plant, and gives an enormous advantage in the struggle for existence where the conditions of life are not wholly favourable.' In the hermaphrodite or double-sex flowers, where self-fertilisation is possible, Nature has provided in most cases some wonderful contrivances to prevent it, and to insure cross-fertilisation by the transference of the all-potent pollen-grains from some other plant of the same species.

The adaptability of the hive-bee to the work of cross-fertilisation seems most marvellous, when we realise that in its separate expeditions in search of nectar and pollen it keeps to the flowers of the same species, otherwise its visits would be of no service in most cases, and probably detrimental in many.

On the subject of hermaphrodite flowers Cheshire says,—

An examination of most blooms will show that the essential organs before referred to (anthers and pistils) are so placed that an accidental or unaided transfer of pollen to stigma is unlikely, and where this arrangement of parts is not found it frequently occurs that the anthers ripen and dehisce much before, or not till some time after, the stigma has so matured as to be ready for pollination. In the former case, as we may observe in the common garden nasturtium (*Tropaeolum majus*), the pollen is all carried away by insects by the time the stigma presents itself, so that if fertilisation be effected it must be through the bringing of pollen from some other blooms still shedding it. Insects are the means which accomplish this, and to secure their

visits the blooms spread them a banquet.

In the common sage (*Salvia officinalis*) both the stamens and the pistil are of a very peculiar form, and the latter is not fully developed and ready to be fecundated until after the anthers of the same blossoms have shed their pollen.

The anther-cells, instead of being close together, are at the two ends of a long connective, which is attached by a sort of pivot joint at about one-third of its length to the stalk of the stamen. The lower anther-cells contain very little pollen, sometimes none at all, while the upper ones are fully developed. When the bee thrusts its head into the tube, it presses against the lower cells and pushes them back; the connectives revolve on their axis, and the upper anther-cells are brought down on the bee's back, the hair of which brush off the pollen, which the bee carries away, and as soon as it meets with an older blossom, in which the pistil is fully developed, it is evident that upon entering the tube of this blossom the pollen already on the bee's back must be rubbed against the stigma, and the cross-fertilisation be thus effected.

—:o:—

II IN RELATION TO FRUIT CULTURE.

Professor A. J. Cook, the well-known entomologist and apiarist, author of 'The Manual of the Apiary' formerly of Michigan Agricultural College, and now of Pomona College, California, who has paid particular attention to this subject extending over a long period, wrote me a short time ago in reply to some questions I sent him. He said,—

Bees never harm blossoms, but are always a help. Bees are a tremendous aid through pollination. Many of our best fruits must be cross-pollinated to produce. Many pears, apples, and plums, &c., are utterly sterile to their own pollen. Bees are alone numerous enough to effect this valuable service. I am sure that it is an incontrovertible fact that bees as the great agents in pollination are far more valuable to the world than for the honey they produce. The best orchardists (in California) now arrange with apiarists to bring their bees to the orchards; they find they must have the bees,

Coming from such an authority, this is

eminent testimony as to the value of the hive-bee to orchardists.

Conclusive evidence in this respect came under my own observation. In the winter of 1882 I started a bee farm at Matamoras, and had about one hundred colonies of bees when the fruit-blooming season came on. The apiary was located close to a mixed orchard of large trees covering some 10 acres. The nearest bush was about five miles distant, I should judge, and the orchard being in an open plain, there was no shelter for wild bees nearer than the bush, so that it is not at all likely the orchard was ever by bees. I was informed that, though the trees blossomed abundantly each season, the trees bore very little fruit, that the whole 10 acres did not supply fruit enough for the station. The result in that and subsequent seasons, by the aid of my bees, was that the trees had to be propped up in all directions to keep them from breaking down under the weight of the fruit.

(To be Continued.)

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No Lime Required.

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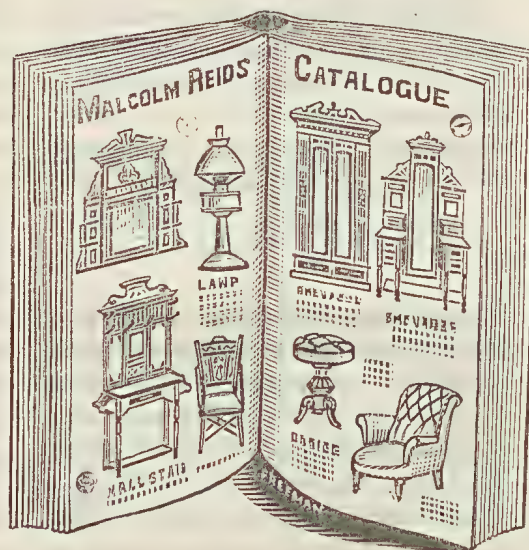
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THE FARM.

Horses Blown By Lucerne.

These few remarks on the above subject (writes D. M. Hugo of Nuy) are forwarded as the result of my own personal experiences, and they may serve as a warning to farmers who are in the habit of feeding lucerne regularly to their horses. That lucerne is a perfectly safe feed when properly given no one can dispute, but accidents will occur in the best regulated establishments. One day one of my mares, a valuable Hackney, fed on faded young lucerne, was found to be badly griped, and despite the administration of homely remedies, she became worse and worse, and towards evening was so distended with gas that she had the appearance of an ox in a similar condition. I hurriedly sent for Mr. Goodall the Government Veterinary Surgeon at Worcester, and for once was lucky enough to find him in. On making an examination Mr. Goodall informed me that the only thing to save the animal's life would be to puncture the bowel with a trochar and canula, but he warned me that it was

a risky operation in the horse, and only to be thought of as a last resort. By artificial light the operation was successfully performed in the right flank, and a tremendous amount of gas escaped; the animal obtained instant relief, and immediately went off into a sound sleep. She made a good recovery, and suffered no ill effects. Mr. Goodall informs me that he has performed the operation on several animals since with good results but, on account of the susceptibility of the horse to peritonitis, it is not an operation he would recommend anyone to undertake; but still, if a valuable animal's life is at stake, it might be worth while. The great points to bear in mind are to sterilize the trochar and canula thoroughly by boiling, to cut the hair off the point of puncture and disinfect the skin, and to push the canula well in, so that it does not slip off the bowel. The operation is done in the right flank, in the middle of the triangular space between the hip-bone, last rib and backbone. The trochar canula ought to be at least eight inches long.

Cape of Good Hope Agricultural Journal.

Curing Hams and Bacon.

Before being killed, a pig should have nothing to eat for at least twelve hours preceding the slaughter. By whatever means the animal's death is accomplished every endeavour must be made to get the last drop of blood out of the body, otherwise the flesh will not cure well. As soon as this is done, the carcass should be

plunged into almost boiling water. The proper temperature is very important. If either too hot or too cold, the hair will not come freely off. A good old-fashioned plan to try the temperature is to let a few drops of pig's blood fall on the water. If it spreads all over the surface, the temperature is right. Leave the pig in the water till the hair comes freely off. The next thing is to hoist the carcass out of the water. Hang it up and scrape it vigorously with some sort of blunt scraper; the lid of a billy is as good as anything else. When the hair is removed, dry the carcass well. Next, remove the intestines, and wipe the inside of the body dry. Let the pig hang in a cool place for twenty-four hours. Then cut it up into hams, hands, spare ribs, loins, and belly pieces. The spare-ribs and loins are usually roasted fresh. The other parts are rubbed over with coarse salt and a little saltpetre, and laid on a table, flesh uppermost, so as to drain off any blood.

Where a side is to be dry-cured whole, after removing the joint oil and washing the cavity freely with salt and water, the flesh part of the side should be sprinkled freely with equal parts of powdered saltpetre and boric acid, to retain the colour. After twenty-four hours wash this mixture off. Then dry-salt with the following:—50 lb. best fine dairy salt, 5 lb. of brown sugar, 5 lb. of powdered saltpetre, and 5 lb. of boric acid.

These should be well mixed and passed through a fine sieve. Rub the flesh freely every morning with this mixture for

For GOODNESS Sake Use

VICEROY TEA.

fourteen days. Each day drain off all accumulated fluids. More care should be directed to rubbing the first two days after which it may be conducted more lightly. The sides are laid one on each other, and reversed every day.

When the curing is completed, wash off the salt, &c., with warm water, and hang the side up to dry in a well-ventilated room. With favourable weather this will take from four to six days.

The bacon is then hung in the smoke house. The fire place is outside the smoke-house, from which a flue communicates with the centre of the floor, to reduce the temperature of the smoke as much as possible before reaching the bacon. It is a distinct advantage to smoke in a cool state. Native apple-tree and hardwood sawdust, or damp maize cobs, are useful to smoke with, and will improve the flavor. The smoking will take from four to five days. Judgment is needed to determine when the flavor is sufficiently developed.

'Queensland Agricultural Journal.'

Miscellaneous Items.

One cause of serious loss to farmers is their want of care for farm machinery.

All vegetable matter, weeds, stubble, and such like, should be turned in, not burned off.

Corn, while it will grow fairly well in an acid soil, is often benefited by a dressing of lime.

Anyone who plants and reaps crops knows that it is ruinous to the soil to keep on taking away without ever putting anything back.

Liming favors the growth and action of nitrifying and other desirable soil bacteria, as well as setting free hitherto insoluble potash.

When selecting stallions for a district those who perform the task should know the class of mares in the district, and secure a horse to suit them.

The stables should be well ventilated and drained, using plenty of bedding. Sawdust or land plaster will readily absorb all of the liquid manure.

A lot of inferior grains and vegetables can be converted into a good profit by being fed to pigs, and, when dairying is carried on, pigs are an absolute necessity.

In the lucerne regions of America brood sows are fed exclusively on lucerne hay in winter, and pasture in summer time. Very little grain, or none whatever, is fed. As a result the sows are always strong, vigorous, and healthy.

No horse can be kept in good condition if it be infected with worms, and all horses are liable to be thus troubled at some time, both colts and older horses. These worms line the intestinal tract and sap the energy liberated by the food eaten, so that no amount of good care and feeding will fatten a wormy horse.

Eucalyptus is said to be an excellent cure for influenza in horses. The method of application is to saturate a strip of soft cloth with the oil and tie it around the bit.

According to statements made recently by leading American manufacturers the farmer would not have to buy more than one half of his present stock of machinery if he took proper care of it.

Because £20 will not buy the same stamp of horse now as it would 15 years ago does not prove that they have fallen off in quality. It merely establishes the fact that they have gone up in value.

When we produce a cereal crop and dispose of it, almost everything is taken away off the land, and we have to be continually replacing these things, while if we feed to stock we have the most of it returned to the land.

Brood sows should always have sufficient nutritious food to keep them in good condition. At farrowing time the sow should not be too fat. If she has had plenty of exercise and is in fair condition she will be better prepared to care for her offspring.

The roots of maize, millets, and sorghums penetrate to a great depth for nourishment and moisture, hence the aim is to adopt deep cultivation in order to loosen the subsoils. A porous subsoil not only affords the roots an opportunity to develop, but also to provide storage for moisture.

ARAB COFFEE

DELICIOUS AROMA.



NOTICE TO FRUIT AND PLANT DEALERS.

The attention of all persons interested in the inter-State trade in fruits, plants, and vegetables is hereby drawn to the Amended Regulations dealing therewith as published in the "Government Gazette" of July 9, 1908, on pages 33 and 34, under which

1. Grape vines, or portions thereof, are absolutely prohibited.
2. Other plants and fruits may be introduced via Serviceton by rail, per parcels post, to Adelaide, and via Port Adelaide by sea only.
3. No parcel containing those goods shall be landed in South Australia without an inspector's permit.
4. No plants other than those growing in pots having soil attached to their roots will be admitted.
5. A certificate signed by an officer of the Department of Agriculture in the exporting State—indicating that they were reasonably free from disease when exported—must be presented with every consignment of fruits, plants, or vegetables on arrival, such certificate must also indicate whether the case or covering be quite new or has been efficiently disinfected.
6. Every such package must have indelibly and legibly printed, marked, or stencilled upon it, or upon a tag or label attached to it, the exporter's name and address or some mark which he has registered with the Department of Agriculture in the exporting State.
7. All banana fruits must be accompanied by a certificate signed by the grower, as well as by an officer of the Department of Agriculture in the State where they have been grown, certifying that they have been effectively covered against fruit flies for three (3) weeks prior to being exported.
8. No plants or portions thereof will be admitted from any State or country where phylloxera exists unless accompanied declaration made before a Justice of the Peace, British Consular Agent, or officer of the Department of Agriculture in exporting country to the effect (a) that the plants were not grown within 50 yards of any grape vine, (b) that no phylloxera exists or has existed in the plantation from which the plants originated.
9. No charges will be made for goods inspected and certified for export. For imported goods an inspection fee of one penny, or a sorting fee of threepence per package will be charged when not exceeding two cubic feet in capacity. Extra charges will be made for larger packages and for disinfection when necessary.
10. The penalties for any breach of these regulations are fines from £5 to £100 or imprisonment not exceeding six (6) months.

Persons desirous of obtaining further information may do so by applying to the Department of Agriculture, North-terrace.

L. O'LOUGHLIN, Minister of Agriculture.

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Eggs and Chickens for Sale during Season.

Black Orpington, Buff Orpington, and Indian Game—Eggs, 15s., Chickens, 30s. a dozen.

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Settings will be 15 eggs and no replacements.

Chickens at a month old.

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For further particulars apply to the Poultry Expert, Crown Lands Offices, or the Poultry Superintendent, Agricultural College, Roseworthy.



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Milk Testing Without Apparatus.

Professor Gustave Michaud, Costa Rica State College, writes to the "Scientific American" of 24th April, as follows:—

The following process for the detection of added water or of skimmed milk in ordinary milk is more accurate than the simple use of the lactodensimeter without the creamometer check. The whole test can be made in five minutes. The result does not show whether the adulteration consisted in the addition of water or in the subtraction of cream, but, as a rule, this matters little to the consumer. What he wants to know is whether or not he had what he paid for.

The suspected milk is stirred with a spoon, in order to disseminate into the whole liquid the cream which may come to the surface. Then, one volume of milk is turned into fifty volumes of water (1 fluid ounce of milk to $2\frac{1}{2}$ pints of water). A candle is lighted in a dark room. The experimenter takes an ordinary drinking glass with a tolerably flat and even bottom, and holds it right above the candle, at a distance of about 1 foot from it, so as to be able to see the flame of the candle through the bottom of the glass. The flame becomes less and less bright, as the level of the liquid rises in the glass. The flame is soon reduced to a dull white spot. A little more liquid slowly added so as to avoid pouring in an excess, and the flame becomes absolutely invisible. All that remains to be done is to measure the height of the liquid in the glass, this being most conveniently ascertained by dipping into it a piece of cardboard, and then measuring the wet part. It should

measure not over 1 inch if the milk is pure. With good quality milk, diluted and tested as stated, the depth will be about $\frac{1}{2}$ in. before the flame is lost to view. A mixture of one volume of milk and a half a volume of water should show a depth of $1\frac{1}{2}$ in. A depth of 2 in. indicates either skimmed milk or a mixture of one volume of good milk with one of water, and so on.

The reader has already understood that the process is based upon the close relation between the opacity of milk and the number of fatty corpuscles contained in it. Both skimming and the adding of water work in the same direction—namely, to decrease the opacity of milk.

The same cannot be said of the density. Skimming increases it, adding water decreases it; and the common test, which consists in the mere introduction of the lactodensimeter into milk, is worthless, as skimmed milk may have a normal density if care has been taken to pour into it a certain amount of water. Density should be taken before and after skimming, and the percentage of cream should be determined with the creamometer. Thus applied, the density quest requires a lactodensimeter, a thermometer, and a creamometer, and the test requires twenty-four hours; while the result is not much more accurate than the opacity test just described, which only takes five minutes.

Here we have a simple means by which the housewife can ascertain for herself whether she is paying for pure milk, skimmed milk, or milk and water.

Dairy Farming in Denmark.

On the farm of Denmark the cows are tethered in lines on the aftermath of first year's seeds and the whole of the second and third years' grass, but they are rarely put on permanent pasture, and then only on the aftermath. When tethered out thus, they generally wear a coat of some coarse material, which covers them from behind the shoulders to the hips, and hangs more than half-way down the flanks. Two hundred

cows or more may be seen tethered in long lines across the fields. Water is carted out to them twice a day, and they are milked twice a day in the fields where they stand. In the winter they are kept entirely in the cow-house, and fed on chopped hay and straw, corn in the form of meal, bran, and cake. Linseed cake is not held in much repute by the Danish farmers, and those who use it at all use it very sparingly, as the tendency is to produce an oily consistency in the butter, which greatly prejudices its value in the market.

—Queensland 'Agricultural Journal.'

News and Notes.

Only a little cultivation is needed in connection with Australian dairying, but that little is of vital importance.

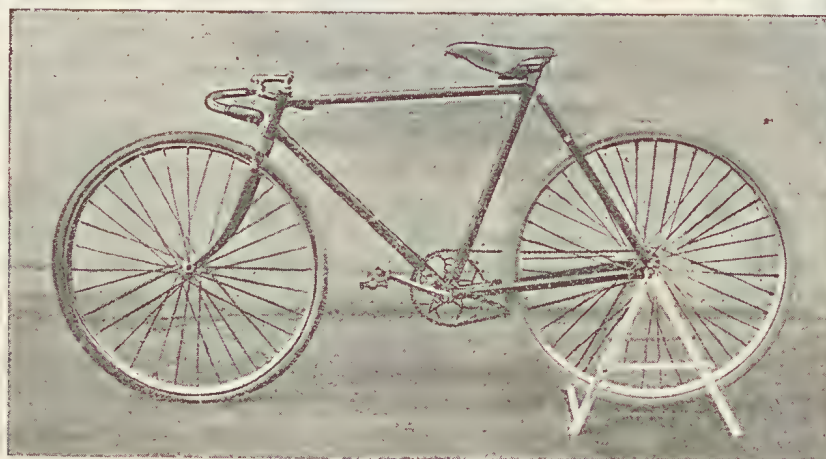
The cow's udder is of special importance. It should be large and its skin, with loose, soft folds extending away back, capable of great distension when filled.

The cow's digestive organs should be strong and energetic, to make an abundance of good blood, which, in turn, stimulates the action of the nervous system, and furnishes the milk glands with the means of large production.

The best bacon pigs are those that are well fed and rapidly grown, but not fat. They have a well-proportioned amount of lean and fat meat, possess small bones, and look nice and sleek, and have good quality. The best bacon pig is one that is nice and smooth.

You cannot afford to keep a single cow that does not make you a profit. Be practical and business-like and apply the only sure test. Keep a book in which to enter on one side all the milk, cream and butter, whether consumed by the family or sold. They are worth in your family exactly what you would have to pay for them if you had no cows. On the other side enter the feed consumed, whether purchased or raised on your farm. The hay or corn fed is worth, on your farm, the market price, less cost of delivering to market. This test, even if conducted for a short time, will show you facts and not what you guess about it.

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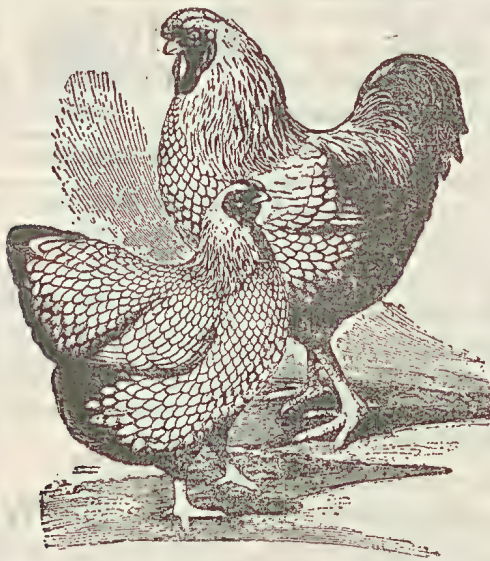
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Diseases of Fowls.

Feeding Fowls.

G. BRAGSHAW, in the 'Agricultural Gazette of N.S.W.'

(Continued from last Issue.)

—Blood in Eggs.—

Occasionally a speck of blood is found in new-laid eggs. As a rule this is the result of over-stimulation, due to too generous feeding, or some spicy condiment or irritant to the diet.

Of course, the blood is from ruptured blood vessels, and when the blood is found in the yolk of an egg it is the result of the rupture of a blood vessel in the oviduct. As a remedy, try the effect of adding a little Epsom salts and tincture of iron to the drinking water. A teaspoonful of tincture of iron is sufficient to add to a gallon of water and 2 table-spoonfuls of Epsom salts.

To a hungry person any old hen may taste tender and good, but to the epicure only the best grades sell well, and it is to this class that the market poultrymen must cater. They pay the price.

Mr. James Dryden, Professor of Poultry Husbandry, at the Oregon Agricultural College, U.S.A., in the course of a lecture on the production and marketing of eggs and fowls, said, on the subject of feeding fowls:—

In the feeding of poultry on the farm, it is neither practicable nor desirable to compound elaborate rations. Where the fowls have the liberty of the fields, the question of feeding is very much simplified; they will there pick up a large percentage of their food. If the farmer were to confine his fowls in close yards, and feed them in the way he usually does on free range, the effect would be a poor egg yield and a loss of vigour in the fowls. The nearer we can follow Nature's teachings in the feeding of poultry, the better will be the results. No set rules can be laid down as to rations, but a knowledge of some of the general principles of foods and feeding will help the poultry man to avoid mistakes.

—Foods—

Successful feeding of poultry rests largely on a proper combination of foods rather than on any single food. There is no one food that will meet all the re-

ments of the fowls. It is not a question of wheat or corn or oats so much as it is a question of vegetable or animal foods, or, again, of protein or fats. The real value of corn or wheat has never been fully determined. The chemical composition of wheat is slightly better than that of corn for egg production; that is, it contains more protein than corn. On the other hand, digestion experiments now in progress indicate that a larger percentage of the corn is digested, or made use of by fowls than of wheat, but neither corn nor wheat should form the exclusive diet of fowls. The excess of fat forming material is not a disadvantage in corn if it be fed in combination with other foods rich in flesh-forming or egg-producing material. If the fowls have access to animal food, such as meat scraps and the insects that may be found on the farm, they will themselves correct the undue proportion of fat-forming elements in the corn. In other words, they will balance their own rations. The feeding of poultry is not a question altogether of balanced rations, because a ration may be 'balanced' without containing any animal food, and the ration must contain a large proportion of foods of animal origin for good results. Egg production, it is true, requires a narrow nutritive ratio, but the nutritive ratio does not indicate the presence of animal food or the reverse. The great scarcity of fresh eggs in winter is largely due to a scarcity of animal food. There is a close agreement between the food consumed and the product, whether it be eggs or meat. The proper feeding of poultry necessitates a careful study of the composition of foods, as well as of the product.

—Methods of Feeding.—

The methods of feeding, as well as the rations, vary greatly. As already indicated methods that would be successful with the fowls on free range would not be satisfactory for fowls confined in small yards. Where the fowls have the liberty of the fields, which usually furnish a plentiful supply of animal food, satisfactory results will be secured if the farmer will see that they have a liberal supply of grain. Corn or wheat should

furnish the principal grain food. Whether corn or wheat be fed would depend on the prices of these grains. So far as is now known, the feeding value of these grains, under the conditions stated, would be about equal. The farmer can rest assured that he is making no very great mistake in feeding liberally either wheat or corn, if the market price is the same for each. To mix the two grains, however, will be an advantage. A variety of food will help the appetite. Oats are also excellent for laying fowls, and a little barley, by way of variety, may be fed. A good quality of wheat screenings may safely be substituted for higher-priced grain.

— Hopper Feeding. —

Under the conditions of the free-range system, the hopper method of feeding may be used to advantage. It will make a decided saving in labor, and ensure a plentiful supply of grain at all times for the fowls. The hoppers may be filled once a week, or, as often as is necessary and placed where the fowls can help themselves at will. The feeding of wet mash to laying hens will not be profitable under the conditions of free range on the farm.

— Exercise. —

During the winter, a large proportion of nature's food on the farm is not available, so that different methods are necessary if eggs are to be secured. In the first place, the exercise which the fowls got in roaming over the fields will have to be provided in another way. [This only applies to countries like North America, where the ground is covered with snow in winter.—Ed].

Exercise is just as necessary as the food. Access to a straw stack will keep the hens busy scratching for the stray kernel. A pile of clean straw on the floor of the poultry house, or in an open shed, will be an incentive for exercise if the grain is scattered in it. It is not necessary nor desirable to keep the hens shut up in close quarters.

— Animal Food. —

There are various forms in which animal food may be fed. Bones and meat

may be secured from the butcher, and a bone-cutter used to cut them up into small pieces. Horse meat may also be used, and on account of its comparative freedom from tuberculosis, is safer than meat from some butchers' shops. Skim milk is a good substitute for animal food, but it has the disadvantage of being so bulky that fowls cannot drink enough of it to supply the need of animal food. On this account, it is better to feed 'clabbered' milk, or milk after it has become sour and thick, and the whey has been drawn off. Animal food is very largely fed in the form of dried beef scrap manufactured in the packing houses. It may be fed dry or wet or mixed with a mash. About 8 to 10 per cent. as much dried beef scrap as total grain should be fed to laying fowls.

— Green Food. —

Green food may be fed in a variety of forms. Dry clover or lucerne—preferably the leaves—cabbage, lettuce, sugar beets, and mangels are all good. It is well, however, to feed clover or lucerne in addition to cabbage or beets, otherwise the yolks of the eggs will be too light in color. Fowls must have a plentiful supply of green food at all times.

— Grit. —

Fowls should be supplied with as much grit as grain, where none is available in the field. Gravel, crushed stone, lime mortar, and sharp sand are all valuable as grit.

— Lime. —

For heavy egg-production, the ordinary foods do not contain enough lime for the making of shells. Broken oyster shells serve this purpose well, and, where they can be easily procured, should be kept before laying hens at all times. Lime, mortar, and broken limestone will also furnish egg-shell material.

Beetroot in moderation is a great food for poultry. They enjoy it immensely. It acts in many ways—good for liver complaints, and is useful in assisting egg-production, besides giving the eggs a good flavor.

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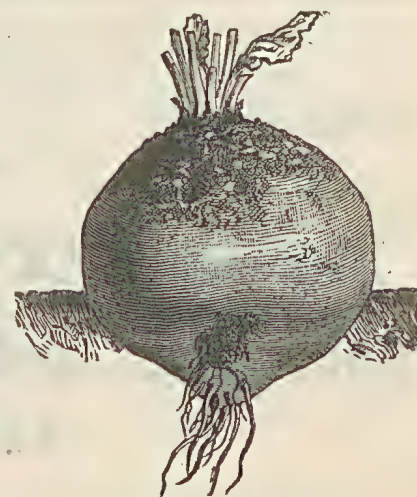
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The Young Folks.

Different Ways of Travelling.

One of the strangest and one of the most amusing ways of travelling which has ever been heard of was that which was adopted by the King of Obbo, a country near the upper part of the Nile. He was not a good walker, and so he usually rode; but he did not choose a horse or a camel, as we might expect that a king would do; he put himself upon the back of one of his strongest subjects and rode pickaback as children do. When he travelled, he was usually accompanied by two or three strong men, who took it in turn to carry him in this way. When an English traveller who had a horse visited him, he thought he would like to try what a ride on horseback was like; but he was no sooner mounted than the disloyal animal kicked him off. He was at first rather stunned, but when he recovered himself he concluded that the horse was 'too high' for him, and he thought that a 'little horse' or donkey would suit him better. But the truth was that he was safer on the back of one of his subjects, who could hold him on as well as bear his weight.

Probably there is no other country in which men are ridden in this way; but in some of the countries on the western coast of South America, through which the lofty mountain range of the Andes passes, there is a mode of travelling which is somewhat similar. In Columbia, Ecuador, and Peru, travellers and goods are usually carried by mules, but many of the mountain roads or paths are only used by men, who carry everything on their backs. The traveller in these wild and lonely districts sits in a chair which is strapped upon the back of an Indian who toils slowly and painfully up the rugged, winding, and dangerous paths. Some years ago nearly all the heavy household furniture, chairs, cabinets, and even pianos, which were found in Cuzco had been carried up from the seaports by Indians.

In many parts of the world it is quite

impossible to travel without native porters to carry the loads of provisions, ammunition, clothing, and tents, which are required on the way. The number of porters which a single traveller requires if he is making a long journey, is often surprising. Speke, an English traveller in Africa, started from Zanzibar with about ninety native carriers. He kept a record of their services, and from that account we learn that they nearly all deserted him at different places on the way. Only twelve of them remained with him to the end of the journey. Fortunately, as the provisions and other things were consumed or used up, the loads became fewer and lighter, and he did not need so many porters. He hired a few new ones on the way, until he reached Cairo, in Egypt. He called these seventeen or eighteen blacks who completed the journey his 'faithful children.' He had them all photographed, showed them all the sights of Cairo, gave them each three years' pay, and sent them back home to Zanzibar by ship; so I think they were well rewarded for their faithfulness. It would, however, have been quite impossible for him to travel from Zanzibar to Cairo without their help.

The strength of African native carriers is surprising. Livingstone knew one who had carried a load of ivory weighing ten stone for hundreds of miles. Marching along under a hot sun with a heavy load upon ones' back is hard work, and the advance is slow. A few miles a day is often as much as an expedition on foot can accomplish. In forests and swamps where the path is difficult to find and very encumbered, half a mile in the hour is sometimes the quickest rate of progress. Indeed, an explorer who had travelled in forests very often, once said that he never accomplished more than ten miles in a day, and that journey occupied him ten hours.

The chief of nearly every savage tribe has his trained runners who carry his messages and orders from place to place, and the fleetness of these men is just as surprising as the strength of the porters. In Uganda they stand about the king, ready to receive his orders at any moment. No sooner is the order

given than they start off at a run, fearing the anger of the king if they should appear slow to carry out his commands. A traveller in Africa once sent off a negro runner who ran one hundred and eighty miles in four and a half days—that is, at the rate of forty miles a day.

In ancient times, when roads were not so good, and vehicles not so numerous as they are now, nearly every country had runners or foot-posts to carry important messages. In China these foot posts had houses at short distances along the main roads, and each post carried his letter from his own house to the next. Each had a belt with bells upon it round his waist, and as he ran the tinkling of the bells warned the post whose house he was approaching to be out and ready to receive the letter. By this means all waste of time was avoided, and a letter might be carried in two days a distance which the ordinary traveller would only accomplish in ten days.

The Incas of Peru, who were conquered by the Spaniards some three and a half centuries ago, had several high roads extending from Cuzco, the capital, to various parts of the country. On these roads they had post houses like those of ancient China, and swift runners carried messages from place to place very quickly. One of these roads passed over the Andes from Cuzco to the shores of the Pacific Ocean, a distance of more than three hundred miles of the most mountainous country. It was said that the king residing in Cuzco could eat fresh fish which had been caught in the sea on the previous day, and was carried by the foot-posts before it had lost its freshness. The Indian runners can at the present time run nine and a half miles an hour, it is said, and thus, allowing that a great number of runners were employed to carry the fish from stage to stage, it is quite possible that this account was true.

Conundrums.

Why would you suppose a clock to be bashful?

Because it always keeps its hands before its face.

EFFECTIVE VOTING ELECTION, 1909.

BALLOT PAPER. PLEASE VOTE.

In this Illustrative Election SIX Members are to be elected for a single constituency. The following TWELVE Candidates are supposed to have been nominated:—

Order of Preference.	Names of Candidates.
	ALLEN, Mr. Peter
	BICE, Hon. J. G.
	CONEYBEER, Mr. F. W.
	COOMBE, Hon. E. H.
	DUNCAN, Hon. J. J.
	DUNCAN, Mr. K. W.
	HOMBURG, Mr. H.
	HOWE, Hon. J. H.
	PASCOE, Hon. T.
	PEAKE, Hon. A. H.
	VAUGHAN, Mr. C.
	VERRAN, Mr. J.

The Votes will be counted in Exchange Room, Town Hall, from 7 till 11 p.m., on Friday, September 3, 1909. The Result of the Election will be published in the Press and the system of counting shown by lineal pictures at a public meeting to be held in Adelaide during Show week.

INSTRUCTIONS TO VOTERS.—The Elector votes by placing the figure 1 opposite the name of the candidate he likes best, the figure 2 opposite the name of his second choice, 3 opposite his third choice, and so on, numbering all or as many of the candidates as he pleases in the order of his preference. N.B.—The vote will be spoilt if the same figure be placed opposite the name of more than one candidate.

This Ballot Paper should be cut out, filled in, and posted not later than TUESDAY, AUGUST 31, 1909, in open envelope (penny stamp), addressed to "Effective Voting League, Box 504, G.P.O.," or may be left at 106 and 108, Currie Street, Adelaide, in closed envelope (unstamped).

[The posting of the Ballot slip has been extended to not later than Thursday, September 2.—Ed.]

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WIT AND HUMOR.

Winning ways—Those of the card-sharper.

—Smelt it.—

Teacher: 'Tommy, can you tell me how iron was discovered?'

Tommy: 'Yes, sir; I heard papa say the other day that they smelt it.'

—And Then —

Customer: 'Yes, I like this suit. I suppose you will make any alterations I may require free?'

Tailor: 'Oh, yes, sir, certainly.'

'Very well, then, just alter the price from £4 to £2, and I'll take it with me.'

—Without Difficulty. —

The Lady (who is somewhat stout): 'Could you see me across the street, constable?'

The Policeman (who is somewhat simple): 'Shure, ma'am; it's tin toimes th' distance Oi could see yez.'

—A Rapid Cure.—

Officer: 'Is your brother, who was so deaf, any better?'

Bridget: 'Shure, he'll be all right in the morning.'

Officer: 'You don't say so?'

Bridget: 'Yes; he was arrested yesterday, and he gets his hearin' in the morning.'

—Smart.—

'We've been having a regular clearance at home,' explained Mr. X, at the office, throwing all sorts of old thing away. I put one of my wedding presents on the fire this morning.'

'Did you, really?' asked a horrified colleague; 'what was it?'

'A copper kettle,' replied X.

—Breaking it Gently.—

Foreman (at the door): 'Did yer husband hev a new suit av clo'es on this mor-rnin,' Mrs. O'Malley?'

Mrs. O'Malley: 'He did.'

Foreman: 'They're rooined entirely.'

Mrs. O'Malley: 'How did ut happen?'

Foreman: 'He was blowed up be a charge av dinnymite.'

— Caustic. —

The train crawled along the provincial line and then stopped dead.

'Guard!' shouted a jovial passenger, 'may I get out and pick some flowers?'

'Afraid you won't find many about here,' said the guard good humoredly.

'Oh, there'll be heaps of time,' replied the jovial one. 'I've brought a packet of seeds!'

— The Cat had Chickens. —

The old housekeeper met the master at the door on his arrival home.

'If you please, Sir,' she said, 'the cat has had chickens.'

'Nonsense, Mary,' laughed he; 'you mean kittens. Cats don't have chickens.'

'Was them chickens or kittens you brought home last night?'

'Why they were chickens of course,' he replied.

'Just so, Sir,' replied Mary, with a smile, 'and the cat's had 'em.'

— A Bad Judge of Birds. —

One day an Irishman was taking home a goose, but on the way called for a drink at a public-house, placing the bird on a seat near by. When he was ready to go he was surprised to find that the bird had disappeared. On going outside he saw a man with it, and said, 'What have you got my goose for?'

The other chap replied that he took it or a lark.

'Took it for a lark,' said Pat; 'you wouldn't be much of a judge at a bird show.'

— And then He Felt Ill. —

The Chinaman could speak no English and the Englishman could speak no Chinese. Nevertheless the dinner went off agreeably. The two men sat facing one another in silence while a neat Chinese butler served them dish after dish of surpassing delicacy.

There was one dish especially that pleased the Englishman. It was a rich stew of onions, pork, mushrooms, and a dark tender, well flavored meat that seemed like duck.

The Englishman ate heartily of this stew. Then he closed his eyes and lifted his hands and shook his head with an air of ecstasy. After this pantomimic compliment to the dish, he said interrogatively;

'Quack, quack?'

'Bow-wow-wow!' said the Chinaman.

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Next month's issue of the "Australian Gardener" will give an Illustrated Display of the Appliance working on the material.

The Ladies' Page

Some Wedding Superstitions.

A bride who finds a spider on her wedding dress may, according to a very old notion, consider herself blessed.

The bride who dreams of fairies the night before her marriage will be thrice blessed.

If the bridegroom carries a miniature horseshoe in his pocket he will always have good luck.

No bride or bridegroom should be given a telegram on the way to church. It is positively a sign of evil.

If the wedding ring be dropped during the ceremony, the bride may as well say another bit of antiquated folk-wisdom wish herself unborn, for she will always have ill-luck.

Kiss a bride immediately after the completion of the ceremony, and before the newly made husband has a chance to do so, and you will have excellent luck throughout the year.

Maidens eager to wed should give dish-water heated up to the boiling point a wide berth. It means that they will not marry for a long time if they attempt to cleanse dishes in water so hot.

Should a bride perchance see a coffin while being driven to the railway station prior to departing upon her honeymoon trip, she should order the driver to turn back and start over again, or else she will surely meet with bad luck.

The lines subjoined embody quite a calendar of wedding lore:

Marry when the year is new,
Always loving, kind and true—
When February birds do mate,
You may wed, nor dread your fate.
If you marry when March winds blow,
Joy and sorrow both you'll know.
Marry in April when you can,
Joy for maiden and for man.
Marry in the month of May,
You will surely rue the day.
Marry when June roses grow,
Over land and sea you'll go.
Those who in July do wed,
Must labor always for their bread.

All who wed in August be,
Many a change are sure to see.
Marry in September's shine,
Your living will be rich and fine.
If in October you do marry,
Love will come, but riches tarry.
If you wed in warm November,
Joy is sure to come, remember.
When December's sun shines fast,
If you marry love will last.

Marriage Ideals--French and Chinese.

The Prefect of Ch'aochoufu—situated somewhere in the "Flowery Land"—is much exercised about a song-book in use in girls' schools, which dares to advocate freedom of choice for girls who wish to marry, and flouts the venerable go-between.

The prefect, in all seriousness, issues a proclamation pointing out the evil results of such teaching. 'The State,' he says, 'which, above all others, cherishes the ideals of freedom is France.

'And in France all marriages of young men below twenty-five and girls less than twenty-one years of age are arranged by the parents; while above those ages the consent of parents and guardians must be obtained.

'Besides, the practice of our own country for several thousand years has been to respect the arrangements made by parents, with the help of the go-between. Disaster must follow the adoption of any change of the old order

—'Scraps.'

Home Hints.

Never dry coffee-pots with a cloth. Scald, and leave open in the sun to dry.

† † †

For a severe headache, a towel wrung out of hot water and applied to the back of the neck will give instant relief.

† † †

Old newspapers are capital things to place under carpets, evenly, and are worth saving intact for this purpose alone.

Salt will do a great deal towards preserving the colour in silk that is to be washed. Soak for a time in cold water, to which has been added a pinch of salt, and there will be little danger of the colour running.

† † †

To do up ruffled net curtains, stretch out on a sheet after starching. Pin just to the ruffles, and leave until dry. Take up and iron only the ruffles, dampening as you go along. This will leave the curtain perfectly straight.

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October Number of

1909

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry).

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A Splendid Fruit Exhibit at the Recent Show.

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Questions and Answers.

QUERIES.—Readers are invited to send us queries on any matters on which they want information. No charge is made for the insertion of questions, but the following conditions should be borne in mind. 1. One question only should be written on one sheet of paper. 2. One side only of the paper should be written upon. 3. Querists must forward their names and addresses (not necessary for publication).

ANSWERS TO QUERIES.—The queries sent us will be answered by men who know the subjects, but at the same time we shall be glad to receive answers to any published from readers who can give the information asked for. Our aim is to get our readers to help one another, and no one is better able to help a small gardener than another owner of a small garden who has gained experience in dealing with the many difficulties that have to be faced.

TEA-LEAVES AND ASHES.

F.M., Wallaroo.—We do not suppose the proportion of tea-leaves is very great, but in any case they will have no harmful effect if dug with the ashes into your clay soil. The general effect will be to lighten heavy soil; but the manurial value of tea-leaves is practically nothing.

CARNATIONS.

M.J., Athelstone.—Cuttings may be put in now.

MAIDENHAIR FERN.

A.B., Mount Lofty.—No; it need not have been cut back.

LIME.

'Ignoramus,' Bowden.—Put it on as it is; it will soon become slaked in the open air.

SOIL FOR FERNS.

A.B., Mount Lofty.—Most Ferns do admirably in good turfy loam; peat is useful for lightening it, but is not indispensable.

PRICKING OUT.

J.N., Paradise.—Read the article on the Begonia in page 14 of this number. The system of pricking out seedlings is clearly described therein.

TAN MANURE.

'Yours Truly.'—Tan decays very slowly, and is not an active manure. But having been employed as litter in the stables it will certainly contain valuable ingredients and should not be wasted. You can use it for garden crops generally but do not expect it to give the best results when applied to a quick-growing crop that requires an active fertiliser.

NITRATE OF SODA.

M.M., Horsham.—Nitrate of Soda is a quick-acting manure which supplies one ingredient required in plant growth—nitrogen. If the other ingredients required are present in the soil the effect of nitrate of soda is very marked, but it is not a general manure like farmyard or stable dung. You may use it in the garden and for pot plants. For the latter, sprinkle a little on the surface of the soil and water it in, or put a tea-spoonful in a watering pot and use the solution. Be sparing in its use.

— DISEASED PULLET. —

S.S., Dry Creek, writes I have a pullet with a large substance under the throat, exactly between the wattles extending down the throat; it is as large as a good-sized egg. The pullet is healthy, eats well, and looks fresh and well. I have cut the substance, first cutting the outer skin, and the lump was then exposed showing another hard grizzly skin. I then cut through that, and a good wine-glassful of black blood streamed out. I stitched the outer skin up, but it is again as large as ever. Will some reader tell me what it is and what is the cure?

The swelling is probably of tuberculous origin, and that or others will be likely in due course to kill the bird. We should not advise you attempt a cure, for there is no likelihood that you will be successful. The safer plan is to kill the pullet and bury her. You are, perhaps, not aware that the tuberculous disease is the worst and most deadly the poultry-keeper has to contend with, because it can never be eradicated, and the more chickens you breed the more you will spread the disease.

EDITORIAL.

"When we saw our sunshine made thy Spring, and that the Summer bred us no increase, we set the axe to thy usurping root."

This allegory of an epoch in the making of English history taken from the budding shoots of the orchard is intensely practical although poetical. Many orchardists are apt to be a little soft hearted about trees, and are for many reasons loth to lay the axe to the root. The word 'increase,' however, should be the keynote to determine the case of any tree. As the trees now come into bud the orchardist loses no time in making an examination of them to see where and what the increase is likely to be. If the fruit buds show well for an increase, and if not some explanation is demanded, the proposition then is a simple one. If there is likely to be no increase there should be no tree. It is only taking the place and time and money of another that will show an increase.

Some orchards are as clean as a new

pin, others are grass grown. While orchardists agree in general principals of working their trees, it seems a great divergence of opinion when one orchard is smothered with weeds while another is quite clean. The orchardist who believes in keeping his ground always free from weeds has something to say in its favor, because the system is a good one, if for no other reason than that the virtue is kept in the soil, and it is always open to the air, sunshine, and rain, which are three very important factors in the nurture of root action. On the other hand the orchardist who allows the weeds to grow argues with much reason that when the weeds are ploughed in they return many manurial essentials to the soil that help to stimulate the roots to a vigorous growth to keep pace with the rapid production of new life in the branches of the trees. The quantity of sap that gets into the branches of a full grown tree or vine is very wonderful, and the process is much more wonderful still. It has baffled the investigations of scientists for many years and likely to, although many plausible explanations of it have been given, no doubt all more or less true. But just how the tiny rootlets take in all the component elements of what is called sap, and send it on to the tips of the trees is yet a mystery.

With the advent of Spring now really well advanced on account of the lateness of the Winter all gardeners are as busy as the bees that are humming around the newly opening flowers. The seedlings that have been nurtured with care are now being placed in position in the flower garden, and their fate plentifully besprinkled with hope that they will be spared the ravages of pests and will come true to their kind. Another hope may also be expressed that the gardeners have planted them out with some prepared idea as to the general effect of their blooms. We are not now thinking of the professional gardener whose taste and eye have been educated to understand something of effect in the harmony of colors. The cottage gardener is the greatest sinner generally in this respect. Too often a seedling is simply that, and nothing more

to him, the consideration of size of the plant, and color of the bloom has little to do with the business. In many cases probably he is ignorant of both, and so long as it will bear a flower nothing else is of much consequence.

We would impress upon all and everyone who plant a seedling or a shrub to learn something of the effect it will have when in bloom or for ornamental purposes. Especially so in regard to shrubs and herbaceous plants that are intended to stay for any indefinite time where they are planted. If the general effect is not what is expected, the very best plant in creation will never receive its full merit of praise. For instance, a little plot of iberis may be the prettiest show in the garden, common though it may be, but if it is crowded over with strong rank growing things that hide its beauty the effect is disappointing.

The season promises well for all kinds of vegetables, although at the present moment all good housewives wish that they had a better choice, and the sooner the good promises are fulfilled the better they will be pleased. This is the poorest season in the year for vegetables, and it ought not to be difficult to get a plentiful supply and variety of choice.

Held Over.

Owing to the pressure on our space we are compelled to hold over the continuation of 'Several Aspects of the Protection of our Native Birds,' and several interesting articles on the Cultivation of Flowers, etc.

— Chrysanthemums —

Chrysanthemums for border decoration may be planted from now till the end of October, but if large clumps are desired early planting is advisable. A number of varieties that are very fine when grown for exhibition are indifferent for decorative purposes. Suitable varieties are—Lilian B. Bird, Nellie Pockett, W. H. Lincoln Convention, G. W. Childs, Mermaid, Lady Roberts, William Tricker, Western King, Mrs. H. Cannell, and Goldmine. These are all Japanese varieties, varying in color, form and period of blooming.

Received.

"OUR AUSTRALIA"—The first issue of "Our Australia," a newspaper of our Continent, published in Sydney, came to hand during the week. It is to be issued fortnightly at the modest sum of one penny, and judging by the contents of the first number should command a ready sale.

"SUTTON'S BULBS for 1909"—We wish to acknowledge Messrs Sutton & Sons's—seed growers and bulb importers, Reading England—beautifully produced catalogue fully illustrating their numerous novelties for 1909.



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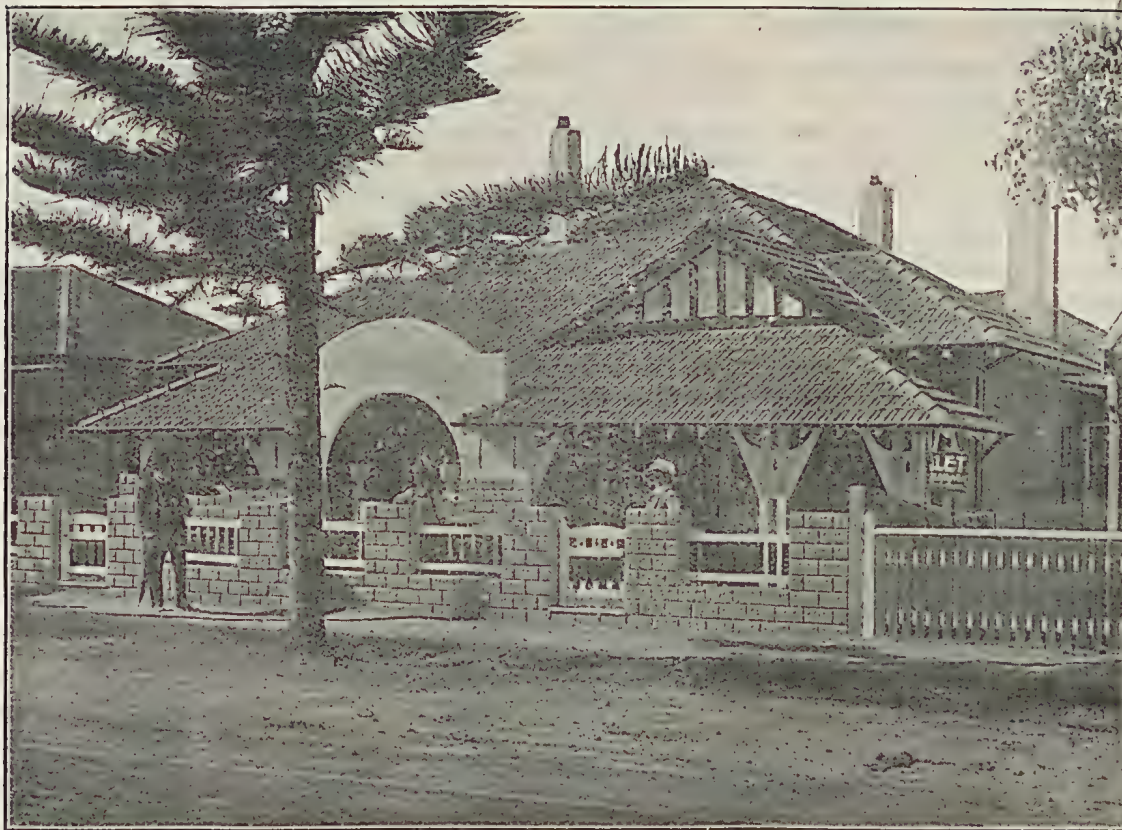
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MARGARET CARNATION

The Flower Garden.

Notes for the Month.

Seasonable work will include the planting out in their flowering quarters of plants propagated from seeds, cuttings or divisions, bulbs and corms of summer blooming subjects, as Gladiolus, Amaryllis etc., and sowing seeds of annuals that would be killed by frosts if sown earlier.

— Pests. —

Careful observation will be necessary to keep the young tender growth of the various plants free from attack by insects or fungi, and from such enemies as slugs and snails. An occasional dusting of quick lime, i.e., lime newly slaked, to spots where slugs and snails are known to shelter, will tend to hold these pests in check. Aphis and mildew on roses and other plants must be promptly attacked and persevered with if necessary, or the results from the plants will be disappointing the whole season through.

— The Dutch Hoe. —

The Dutch Hoe should be going on the beds and borders, primarily to hold weeds in check, and also to prevent the baking of the surface and to allow air and moisture.

— Pruning. —

Plants that have been pruned severely during the winter will usually develop buds so situated that the resulting growths are sure to crowd and exhaust the shoots that the pruner had aimed to specially encourage. Such buds should be removed as soon as they appear, and any abnormally strong shoots that would tend to destroy the symmetry of the specimen should also be either removed or pinched, except where required for exhibition.

— Carnations. —

Carnations will need some attention at this season of the year, if the best possible results are desired, from a decorative point of view. Where an excessive number of shoots are present on old plants, these should be thinned out, leaving about six well placed leaders; also remove some of the weakly laterals, or side growths on the selected shoots retaining those that are strongest and occur nearest to the base of the plants. The plants should be staked or supported as being of a brittle nature they are likely to suffer from the effect of wind. The best method is to make a circle of wire netting, about 18 inches or 2 feet in height, and of sufficient diameter to enable

the whole of the plant to be trained within it. A stake should be threaded through the ends of the netting to make the circle, and another at the opposite side, and each stake securely fixed in the soil. This is the best means of support for the flower shoots, and is also a barrier against rabbits, which, if present, will attack carnations in preference to any other plant. An occasional watering with liquid manure made from guano or some such manure and soot, will benefit the plants greatly, adding to the size and number of the blooms. Soot is a valuable material to a carnation grower, as, in addition to its value as a manure, it keeps mealy bugs and other pests from attacking plants.

— The Bouvardia. —

The Bouvardia is one of the most useful dwarf plants for border decoration or for cutting, blooming freely during summer and autumn. The original types (natives of Central America), of which *B. leiantha*, *splendens*, and *triphyllo* are still found in many gardens, were almost all red flowered; but garden hybrids have been produced much superior to those in form and size, and varied in color. They are specially suitable for small gardens, but should not be planted close to large shrubs or trees. A loamy soil suits them well, and with a fair supply of water during dry hot weather they are sure to give satisfaction. The plants will be cut back by frost in winter unless sheltered, but will break away into growth again in the spring. Desirable kinds are:—*B. Humboldtii* corymbiflora and *Beauty of Brisbane*, white; *President Cleveland* scarlet; *Bockii* and *Priory Beauty*, pink; these are single-flowered varieties. Of the double flowered, *Alfred Neuner*, white; *President Garfield*, pink; *Hogarth fl. pl.*, scarlet, and *Luteola plena*, are the best kinds.

— Cannas. —

Cannas have been greatly improved during the last few years, and are most effective in mixed borders, their tall massive foliage of varying tints of green and metallic red affording a pleasing contrast to the surrounding shrubs and plants. They require a well-enriched

Special Bouvardia
 from
 1905

soil, with, if possible, a warm, but sheltered aspect and plenty of water in summer. There are two types in the lately introduced varieties, one specially tall in growth, with large flowers, is styled the orchid flowering; another, of dwarf and more floriferous habit, the Gladiol-flowering. Amongst the best are—Alemannia, Suevia, Pandora, Italia, La France, Koningen Charlotte, Emilie Lorenz, and Alice Guilfoyle.

Propagating Magnolias.

As nurserymen are aware, magnolias are increased chiefly by layers and by budding and grafting. Layering goes on all Summer, from the time shoots have made growth enough for the purpose until the growth ends. It is the Chinese and Japanese section that is layered chiefly, and the tall growing native kinds that are increased by budding or grafting; but any kind can be increased by either plan. When budding or grafting is thought of, the seedlings of *Magnolia acuminata* have been chiefly used for the purpose, but many contend—and it is not hard to agree with them—that the *M. tripetala* is much the better one to use. For one thing, and an important one, too, it has more fibrous roots than the other.

Raising magnolias from seed is not always successful, as is found from the number of complaints recorded. Yet if properly done, it results in success. As soon as the seeds are ripe they should be mixed with sifted sand in a box or vessel, the same made quite wet in order to soften the pulp to permit of the washing of the seeds. A few days in the sand should suffice. The seeds are then washed free of pulp, and placed in a box mixed with sifted sand, and kept in a cool place until Spring, then sown. The sand in this case should have but little moisture, but it must not be quite dry. The sowing may be in boxes in a greenhouse, or outdoors; the best success comes from indoor sowing. *Magnolia glauca*, *grandiflora*, and all others are readily raised from seeds. The reason so many fail is because the seeds are unwashed and kept dry too long past the time for the preservation of their vitality.

—'Florists' Exchange.'

Australian Shrubs as Grown in California.

A Paper Read Before the Pacific Coast Horticultural Society, San Francisco, by T. F. Taylor.

The first thought that naturally comes to one when the subject of Australian shrubs is broached is eucalyptus and acacias; but as this paper is to deal only with shrubs, gums are not to be considered and, furthermore, gums alone would furnish splendid material for a paper at a future meeting, particularly as at the present time a decided interest is being taken in this State in eucalyptus culture and to the extent and value of the wood of various varieties as to its adaptability for building or other constructive purposes.

As the purpose of this paper is not merely to catalogue all, or the majority of the Australian shrubbery, but rather to enumerate those varieties which have been the most useful under trying conditions in this vicinity: to those which have lent themselves most readily to the art of landscaping or have given forth the strange and unusual beauty of form, foliage or flower, let us pause, figuratively, under the fragrant shade of the acacias. The air is redolent with a soft perfume that is reminiscent of our youthful days, when we chewed licorice stick with an appetite that had not been perverted by chocolate creams, butter-scotch or brown pressed plugs of something with little tin tags on them. But, back to the present, the cause of our divertimento, four much admired friends *Acacias floribunda* and *fragrans*.

The latter has been much used as a street tree, in the past, in San Francisco with good result. When not placed in an exposed position, it forms a good shapely head and responds to the knife quite cheerfully, besides presenting a lively, and pretty appearance, with its profusion of fragrant yellow bloom. *A. floribunda* is much more trailing or struggling in habit, with longer, tougher foliage, borne with a graceful abandon peculiarly its own. Its fragrant flowers appear in such profusion that it well merits its specific

name of *floribunda*. Of the two it is much hardier when exposed to wind, and when established will withstand every drought.

There has been, in all probability, no more widely grown shrub in this State than *A. longifolia*, more popularly known as *latifolia*. It has been more largely used as a street tree in San Francisco than any other tree, being a fast grower, unmindful of neglect, withstanding with its inherent vitality the dust and the wind, the prospective president in embryo with his jack knife and even the devastating hedge shears of the French gardener. Where it is desirable to cover an exposed wind swept piece of ground in a short space of time with a low shrubbery, *A. latifolia* naturally suggests itself, in fact it may be accepted as an axiom by the gardener: 'When in doubt, plant *Acacia latifolia*.' The west end of the Golden Gate Park, in the immediate vicinity of the beach, shows the remarkable hardiness, the vital tenacity and the superior adaptability of the *A. latifolia* as a shelter from wind or the cutting sand which is carried with it.

And *Acacia lophantha*! Every old time native son knows it, and he still calls it the 'the stink bean tree': he used to take the green beans of it to school and tramp them on the floor to annoy the teacher with a foulsome odor that might drive her from the room. He usually succeeded, but that does not alter the fact that the *A. lophantha* is a remarkable sand tree, at all times presenting a beautiful feathery appearance, exciting the attention and admiration of all who see it for the first time.

Acacia Coulterii with its low spreading graceful habit and striking grey foliage is probably the most decorative of the acacias, and would probably appear to excellent advantage in large rockwork.

Acacia melanoxylon is one of, if not the most, valuable street trees for San Francisco. It is not quite as hardy for the first season or two as *A. latifolia*, but is an ideal tree for form; it differs from the average acacia in that it requires a stiffer clayey soil and in time becomes a tree of goodly proportions.

A dainty shrub at all times is *A. Baileyana*, but when in blossom a reigning queen of beauty. It is hardier than its appearance would indicate, but requires occasional waterings during the Summer.

Acacia armata, *A. verticillata* and *A. callamistrata* are distinct types, highly ornamental and useful in large plantings.

Acacia dealbata, in congenial position assumes the proportions of a tree, as does *A. mollissima* which becomes quite a tree, generous in proportion, and more so in the profusion of clusters of beautiful yellow bloom which obtain a ready sale in the florist stores. If Australia had given us only of her acacias we should be under heavy obligation. But what of the *Pittosporums*? The two best known varieties are *eugenioides* and *nigricans*. Each one is prettier than the other. Which one? *Pittosporum eugenioides* has the larger foliage, and with its smooth shiny leaves of a chrome green tinge is one of our most desirable shrubs. *Pittosporum nigricans* with blackish branches, and seems to harmonize readily with the majority of shrubs. But one of the chief charms of these two varieties is the quaint delicious odor emanating from the modest little purplish flowers half hidden in the foliage, an odor that gently assails one in a manner reminiscent of the sweet briar in the older countries, after a rain. Both varieties named are being used for hedges and are a relief from the sombre stereotyped hedges of cypress.

The *casuarinas* from an interesting group, one of the most striking of which is *Casuarina equisetifolia* with its unusual equisetine foliage, drooping and graceful, making a pleasing effect as a single specimen. It is unusually hardy. Others of more than ordinary interest are *Casuarina suberosa* and *Casuarina leucadendron*.

The *melaleucas*, or, as they are aptly named, 'bottlebrush,' from a welcome addition to our hardy shrubbery. And the *coprosma*, what shrub has the same intensity of color? Its greenness is almost luminous and its handsome orange red berries form a rich contrast to its foliage.

One of the very best of the park shrubs

assuming a tree form is the *Tristania conferta*. This shrub, or tree as it may eventually be, is quite beautiful, symmetrical in growth, pretty brown bark, the broadly ovate lanceolate leaves being tipped with a metallic reddish luster hard to describe. It is one of the myrtaceæ closely allied to the gums, and during Winter bears a number of pretty white blossoms closely resembling those of the *Eugenia apiculata*. This plant is well deserving of attention and should be given a place in any decorative planting of consequence. It would harmonize with and relieve large plantings of lilac of their tameness when out of flower.

If there be any one plant more than all others combined that has given a touch of the tropics to the appearance of San Francisco it is the *Dracaena indivisa* planted on the streets or in the park and gardens. These very useful shrubs withstand the wind, indifferent planting, poor soil and neglect in a manner worthy of admiration. Quite true, the stems do present a rather bare appearance when the plants become tall, but then the average house gardener would trim them that way anyhow. I believe that if one of those knights of the hedgeshears were to meet a feather duster in the garden he would trim the whiskers on it till it would look like a window brush.

And then there is the *Eugenia myrtifolia*, with its shining bronze brown foliage forming an elegant contrast, or rather harmony, with similiar forms of shrubbery having the usual shades of green; and *Eugenia apiculata*, and gem of loveliness when decked in its blossoms of white; and speaking of white is there anything growing outside more sweetly chaste than those clean pure blossoms of the *Swainsona*? What a pity it grows so readily, otherwise the florists and the public might rave over it.

Clianthus puniceus is another of the Australian shrubs which has made itself at home here. Outside of our parks it is seldom grown as a shrub. It trains very readily; and how many dull old fences have been covered up by its refreshing green foliage, and its odd pendulous clusters of clawlike flowers that have so aptly suggested the common name of crabclaw!

And we have the *corynocarpus*, *Hakeas* myrtles, *ericas*, the gorgeous *Sterculia acerifolia* and the *Dicksonias*, *alsophilas* and other tree ferns and palms; which like the gums will furnish a paper of themselves, and we might go on and on like Longfellow's 'babbling brook,' for the farther one goes into Australian shrubbery the more he become aware of vastness of the subject and the dearth of knowledge we have of that country of animal and vegetable wonders. Where is there a shrub in which there is combined so many admirable qualities as the *Leptospermum laevigatum*. There were no colored plates in the text books to herald it as being anything out of the ordinary, but in Golden Gate Park it has received its full measure of appreciation. Out at the very edge of the beach where the spendthrift of the waves adds its share of moisture to the dreary fog, out where the sand-laden winds swirl and cut like needles; there this remarkable shrub not only exists but thrives. In many portions of the park may be seen handsome clumps gracefully informal, while on the other hand it may be seen in formation of excellent hedge; while again with a little encouragement it entirely embowers a stretch of walk, producing a perfect ideal arbor effect, which in the early Summer is a delight to the eye when the trailing or drooping foliage is heavily laden with its wealth of pretty white blossoms. It is worthy of mention also that *leptospermum* may be used to excellent advantage for decorative purposes; the huckleberry of the florists is stiff and artificial in comparison. Name for us another shrub with the versatility of our lowly, modest *leptospermum*?

There is also a very interesting variety, well named, *ericifolia*, which is quite pretty when in flower. But I am again reminded of the babbling brook, and will close with the hope that collectors or importers may be induced to send us many of the Australian shrubs which to us are only names in certain textbooks; or that some one having the ways or means to introduce them will in a spirit of good will towards the horticulture of our favored State grasp the opportunity to add to our shrubbery some of the many desirable, but, to us, unknown shrubs which we may consistently believe are yet to be introduced from the land of the acacia and the *leptospermum*.

—Florists Exchange.

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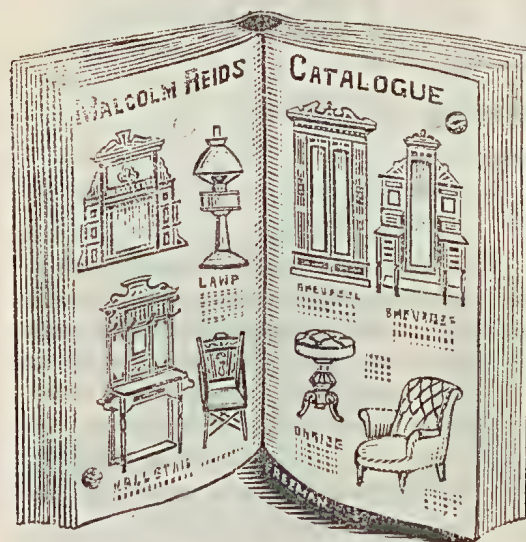
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BEGONIA GRANDIFLORA ERECTA CRISTATA.

Description of Flowers.

May be Sown during this Month.

Begonias.

There are several distinct groups of Begonias, most of which will thrive in the open in this State. The shrubby species flower at all times of the year, and include a large number of species and varieties, among the latter being the beautiful 'Gloire des Sceaux.' The ornamental-leaved group, of which B. Rex is the type, includes many handsome-leaved varieties, and the tuberous group, which are treated as green-house plants.

Begonias have been highly improved of late years, and as they are admirably adapted for the green-house as well as for planting out in warm districts in sheltered positions, and are easy to grow, no lover of horticulture should neglect them.

As pot plants they require considerable attention in the matter of repotting. They thrive in ordinary compost made open with plenty of sand. The seed may be sown on the surface of well-drained pots or pans of such loam, and subjected

to a heat of 65 deg. Fahr. They do not require much water. In a little over a week the seedlings will appear, though it will require close examination to detect them. The seedlings should be pricked off at once, owing to their liability to damp off if at all crowded. Get a quantity of soil consisting of leaf-mould and sandy loam in equal quantities, half fill a 32-sized pot with crocks, and fill to within one inch of the rim with soil, gently pressing it to give a level surface. Get a little stick, point it at one end, and make a V-shaped slit at the other; then make a small hole in the soil with the pointed end, loosen the soil round the seedling a little, insert the slit of the stick under the seed-leaves; then lift it out and place it in the hole already prepared, press the soil gently round it, and continue to follow the same routine until you have about forty of the tiny plants distributed at even distances over the surface of the soil. Cover the pot with a pane of glass, and remove the glass by degrees as the plants begin to progress, taking care to shade them from strong sun, as glaring

sun heat is most injurious, causing the tender leaves to turn yellow, and finally to drop off.

The soil for Begonias must be of a light and porous nature. Do not use peat if you can obtain leaf-mould, and let the loam be of a sandy and fibrous nature. Once place your seedlings in a stiff soil, the roots cease to work, and a check ensues, from which they seldom recover.

Do not bed the plants out until about the end of December. They may seem small to you, but it is astonishing how they will grow in their new quarters, for in about six weeks they will be a mass of glistening foliage and vivid color.

If planted in a sheltered and somewhat shady position they will continue to bloom until the winter frosts cut down their stems.

Wait till the stems are quite withered, or till they have dropped from the tuber, and then carefully lift the latter with a little soil adhering to them. Do not clean the tuber, as so often recommended, even the most careful hand will sometimes bruise it, and then decay will set in during the winter.

Begonias are invaluable for the decoration of the green-house or conservatory, where they produce a magnificent and dazzling display. Their handsome large flowers, often measuring 4 inches in diameter, are of the most brilliantly varied and delicately beautiful shades, from the purest white to the deepest crimson, including yellow, bronze rose, and other intermediate shades. The tuberous-rooted Begonias are also eminently adapted for bedding.

Occasionally double tuberous Begonias bear both double and single flowers, which is easily accounted for. If the grower will observe the flowers of his single-flowered plants he will find that they are of two kinds—pistillate and staminate. Now, in the double-flowered plants the staminate flowers will be double, because the stamens have turned to petals, while the pistillate will remain as they are upon the single-flowered plants. There are no tuberous Begonias that bear all double flowers. They all vary in bloom as described.

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 King's Island Melilotus, Sheep's Burnet

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 Planters' Friend, Hungarian Millet
 Japanese Millet, Pearl Millet (Pencillaria)
 Guinea Grass, Johnson Grass



Prairie Grass

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 Horse-Tooth Maize
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 Dwarf Essex Rape
 Japanese Buckwheat
 Sulla Sainfoin
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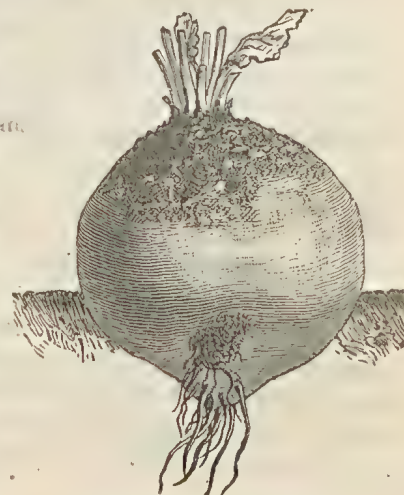
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Yellow Globe Mangel.

About Vegetables.

The Kitchen Garden.

Operations for the Month.

The kitchen garden should be making something of a show by this time, for with the advent of warm days and nights the soil is losing its chill, and everything in the vegetable line is showing its appreciation by awaking from its dormant state.

— Hints on Seed Sowing. —

Seeds should never be sown when the soil is wet and sticky, and the extreme opposite of dryness should also be guarded against. It is most important that new and pure seeds be obtained. We have amongst us many seed firms of high repute, whose interest is to sell only seeds of the best quality, and it is better to rely on these rather than on some others who may offer their goods at a trifling less price. But the seedsman is often blamed for failures without any real reason. The amateur gardener may sow his seeds too deep, or when the ground is not in a fit condition for their reception, either too wet or too dry. Always sow in drills rather than broadcast; the seed goes farther, it is more evenly distributed and the labor of thinning and weeding is more easily done. Seeds should not come in contact with manures, the latter is better placed inches below the surface. Seeds are often sown too thickly, and this means considerable labor in thinning out the superfluous plants. For the reception of all smaller seeds the surface soil should be brought to a fairly fine tilth; for peas and beans this is not necessary.

ASPARAGUS BEAN.

If you have not done so, make a small sowing, and in doing so follow the cultural directions given below for the French Bean. The plants grow about six feet high, and require sticks, or will grow well against a wall.

FRENCH BEANS.

Make sowing of the immensely popular French Bean. Any good garden soil will grow them, but the best crops are obtained from good loams or alluvial soils. The drills should be a few inches deep, varying from 2 to 4 inches, according to the weather and state of the soil. Make the rows 3 feet apart, and put the seeds at least 6 inches apart in the rows.

LIMA BEANS.

Lima Beans are a good crop to grow in the summer months, as they will stand any amount of heat and dry weather, and continue in bearing for a very long time. The dwarf or bush limas are perhaps the best to grow, as they require no poles, and consequently give less trouble. Lima beans may be planted during this month, and will continue to grow and bear until cut down by the frosts of winter. Dwarf limas may be planted in drills 3 feet apart and the seeds 18 inches apart in the rows, or in hills of 4 or 5 seeds 3 feet apart each way. The seeds should not be planted more than 2 inches deep, and should be placed in the ground edgewise, with the eyes down.

The Lima is a shell bean, the part used for food being the bean itself, and not the pod. They may be used green or allowed to ripen and stored for winter use. They will keep for a long time, and only require soaking in water before cooking to render them soft and palatable. They are the most delicious of the pod beans. Lima beans should be more extensively cultivated than they are, because they will succeed in dry seasons when other beans fail, and continue to bear right through the summer.

A good manure for those planting on a larger scale is a light dressing of farmyard manure, 4 to 6 cwt. of superphosphate, and 1 cwt. of sulphate of potash (or 4 cwt. of kainit) per acre. The use of 2 cwt. of nitrate of soda per acre gives a very substantial increase of crop.

RUNNER BEANS.

This class of bean was fully dealt with in our September issue. More seed may be sown if required.

BROCCOLI.

Seed may be sown in small beds or seed-boxes, and the seedlings transplanted when the young broccolis are large enough. Sow thinly in little drills.

CABBAGE.

The Improved Heading Chinese Cabbage is a good variety for present sowing being both vigorous and rapid. The leaves are large light green, and of a mild, delicate flavor.

An article dealing with Cabbage Aphid appears on page 18.

CAPE GOOSEBERRY.

There is still time for a sowing of the above if required. See our last issue for particulars as to its cultivation and uses.

CRESS and MUSTARD.

Sow for succession about once a fortnight in light rich soil in drills half an inch deep and 8 inches apart, and sow thickly.

CUCUMBER.

We dealt fully with the Cucumber in our August issue. More seed may be sown in order to keep up a succession.

EGG PLANT.

This excellent vegetable was described in the July issue of this journal. More seed may be sown if required.

LETTUCE.

More seed may be sown for succession, and the plants large enough planted out.

WATER MELONS.

We went fully into this subject in our last issue, so it is sufficient to say that more seed may be sown.

ROCK MELONS.

Of the many members of the cucurbitaceæ order or cucumber family, the rock melon is the most tender. The word rock is often misapplied to these fruits: originally, it was applied only to those kinds having a rough or rocky surface, but now we find the smooth-skinned, musk, green, and scarlet flesh varieties all coming under the name of rock melons. Good crops of these melons are produced by plants which have been raised from seed sown in the open, but the fruits usually ripen late in the

season, when they are not so much appreciated as they would be at an earlier date. The soil for this class of melon need not be so heavily manured as that for some other kinds. A somewhat strong loam with a little manure suits the plants admirably. Much manure causes a luxuriant growth of vine, perhaps fewer fruits of an inferior quality to those grown under other conditions. There is a wonderful difference in the flavor of melons, and care should be taken to save seeds only from those fruits of tender flesh, having a rich, highly flavored aroma, and with a thin skin. The colour is also of some importance to many persons. The green-fleshed kinds are preferred by many to the scarlet, orange, or pink-colored sorts. Then again, many varieties are beautifully netted, and this is an advantage over the smooth surfaced sorts. Long Island Beauty, Emerald Gem, and Early Hackensack are fine early varieties of American origin.

Rock melons should be grown in patches about 5 feet apart, and there should be two or three plants in a patch. As the seeds sometimes fail to germinate, it is better to sow more than the number of plants wanted.

MOUNTAIN, OR ORACH SPINACH.

This is also known as Tree, Cape, and French Spinach. The leaves are used as Spinach. Sow in drills 2 feet apart. When the plants are 3 to 4 inches high, thin out to 18 inches apart in the rows.

OKRA, OR GOMBO.

Make a small sowing in rows from 2 to 3 feet apart.

PUMPKINS, SQUASHES, TROMBONES and VEGETABLE MARROWS.

Make another sowing of any of the above you may require.

RADISH.

Sow either in drills or broadcast, and when the plants are fit thin out to about two inches apart.

RAPE.

Make a small sowing of Broad-Leaf Essex Rape in the same manner as Mustard and Cress. It is a very wholesome vegetable; the leaves are used as Spinach, and also as a salad.

SILVER BEET.

This most useful vegetable is not grown as largely as it merits. It is to some extent, if the term may be used, a permanent vegetable—that is, the leaves may be pulled time after time for a considerable period if the plants be well treated and looked after.

Sow a little seed in rows, and afterwards thin out the seedlings when they have attained a height of about 2 or 3 inches.

TOMATO.

More seed may be sown. This excellent fruit was fully dealt with in the August issue of this journal.

NEW ZEALAND SPINACH.

Sow the seed in a bed, 4 inches apart, and when the plants are 3 inches high plant out in light rich soil in rows 3 feet apart each way.

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About Vegetables.

Cabbage Aphis.

With regard to the means to be adopted for keeping aphids occurring upon cabbage in subjection, it may, prior to going into details, be pointed out, that its mode of feeding consists in piercing the plant tissue with its proboscis or snout—an hair-like organ—and therefrom extracting the sap, and that, accordingly, unlike an insect that feeds by gnawing away the substance of the foliage, it must be attacked by means of some preparation that kills by contact. Such insecticides as Paris green, lead arsenite, &c., are not, therefore, available for its destruction. But, being a soft-bodied insect, the death of the individual may be readily effected; several preparations when used, securing this end. Amongst these the following may be mentioned:—

—1. Tobacco Tea.—

Made by pouring boiling water over tobacco at the rate of 1 lb. of the latter to 4 gallons (kerosene tin full) of the former. Any crude tobacco being applicable for the purpose, such as leaves from ordinary plants grown on the farm and dried, or stalks, a waste product from tobacco manufacture. Should a little syrup (crude molasses) or soap be added to the decoction, this will promote adhesion, always difficult in the case of cabbage aphids, and the plants they feed upon, both being covered with a wax like bloom that tends to shed any fluid directed upon them. Generally speaking this tobacco infusion should be of a strength indicated by its being of the color of the beverage—tea.

—2. Fish Oil Soap Wash.—

Made by dissolving the soap in hot water at the rate of 1 lb. to 125 gallons (final dilution).

—3. Pyrethrum ('Insectibane' Powder and Water.—

At the rate of 2 tablespoonfuls in a bucketful of water, the powder being first made into a paste with a little water.

—4. Kerosene Emulsion.—

One pint in from 20 to 25 parts of

water. (Note.—For manufacturing this and the undermentioned, see any modern work on horticultural practice.

—5. Resin Compound.—

One part of resin saponified in 12 or 15 gallons of water.

—6. Hot Soap Suds.—

Cabbage plants will tolerate water, especially when this is applied in the form of a spray that is sufficiently high in temperature to be quite fatal to plant lice of aphides. In mentioning several remedies, one is actuated by the experience that the farmer often possesses one of a number of substances when he has not a single specified one.

In conclusion, it must be borne in mind when pursuing methods for the repression of these insects that only those that the insecticide comes in contact with are killed, although it may have a slightly repellent action for a few additional individuals; and that, therefore, seeing too that aphides, especially in early life, are small, it must be applied in a very fine state of division so as to reach everyone; in fact, in a mist-like form. This end can only be secured by the use of a proper spraying appliance that can so administer a fluid preparation.

Again, by reason of the great and rapid increase in their numbers in the course of their natural development, a few individual aphides, if suffered to remain alive, will soon give rise to a numerous host. Accordingly, treatment must not only be very thorough, but repeated as long as any living individuals are discernible.

It is the neglect of the occurrence of a few examples on young cabbage plants at the time they are planted that is usually the explanation of their subsequent appearance in immense numbers on the developing plants. Accordingly, immediately prior to the operation alluded to, the young cabbages should be dipped in one or other of the fluids mentioned care being taken, however, lest the roots be at the same time brought in contact with it.

Generally speaking, what has been stated will apply to other kinds of aphids and their repression.

—'Queensland Agricultural Journal.'

Reducing Potato Scab.

It having been observed in Yorkshire that scab in the potato is more prevalent in a dry than in a wet season, experiments were made by the Agricultural department of the University of Leeds in order to ascertain whether by treating land with substances capable of holding water the disease might be prevented or reduced. The substances used were—sawdust, shoddy, rape meal, and peat moss; each of these substances being used with and without salt. The sawdust and peat moss were soaked in water before being applied over the sets at planting time. The best results were obtained by the use of 50 cwt. of wetted sawdust to the acre; the addition of salt, however, reduced the yield. Steeping the 'seed' in formalin (six fluid ounces of commercial formalin to 15 gallons of water) reduced the amount of scab in the crop.

A Large Cucumber.

An extraordinary cucumber was exhibited at Richmond (Eng.) Horticultural Show recently. It was (says the London 'News Agency') 37½ in. long, weighed 9½ lb., and measured just a foot around the thickest part. It was raised from seed sown as recently as April 5. During the last two days previous to its being cut it grew 2½ in.

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Cultivation of the Potato.

By the Editor of the 'Queensland Agricultural Journal.'

(Continued from last Issue.)

We now get to the subject of planting whole or cut tubers. Here again opinions differ. Some think it a waste to plant the setts whole, while others think the best results are got with uncut seed. Now, at the Guelph Farm, Michigan, U.S.A., experiments were made which lasted for four years, to decide the matter. These experiments are reliable, and emphatically show the advantage of planting good setts.

The experiments were made to test the effect of the number of eyes in the setts. The difference in the yield between those with one eye and those with five was found to be very considerable, amounting to about 28 bushels, the results being as follow:—

From 1 eye, 136.41 bushels per acre.

From 2 eyes, 144.70 bushels per acre.

From 3 eyes, 153.13 bushels per acre.

From 4 eyes, 162.82 bushels per acre.

From 5 eyes, 164.37 bushels per acre.

Up to four eyes in each sett, the increase in the field is, roughly, 9 bushels for each additional eye, so that, up to that extent, the increase in eyes would be well repaid in the field.

Against this experience, I place that of a Queensland potato grower, Mr. James Pink, of Wellington Point. He says:—It has been the practice to select for propagation the refuse of the potato heap; small, ugly, ill-shaped tubers have been considered good enough for seed, and where the result has not come up to expectations, the cry is raised that the potato is degenerating. In carrying out this practice for years, was it possible to arrive at any other result? But the very art of gardening is to lift Nature above her normal state, by raising new and improved varieties of seed, and by selection.

The method of selection is peculiarly adapted to the principle of growing from single eyes. If we take an average good-

shaped potato, weighing from 6 to 10 oz., we shall find that it has from 12 to 18 eyes, which, if cut into single eyes would give as many setts, which would naturally produce a more even sample than the same numbers of whole tubers of different sizes. The principle of growing from single eyes has two great advantages—namely, economy of seed, and, upon suitable, well-tilled land, a larger crop of marketable potatoes.

When whole tubers are planted, two or three eyes start into growth first; these keep the lead during the entire growing season, and from their stolons the largest potatoes are produced. The weaker eyes start later into growth, and produce only small tubers of little value; but, when single eyes are planted, the whole strength of the sett is devoted to one growth; all the young tubers are formed nearly at the same time, and the plant, having no other calls on it for nutriment, these continue to grow and form large tubers. The whole tuber produces the largest number of potatoes, but the single eye will produce the most uniform sample and the heaviest crop per acre.

With a view to ascertain the relative productiveness of tubers and setts, a series of experiments was carried out in the gardens of the London Horticultural Society. A piece of ground was divided into 4-ft. squares; and in the centre of each square was planted either a whole tuber, or a single eye, or a sett containing three eyes on the whole surface of the tuber pared off so as to leave the eyes safe, but removing the centre—a practice not uncommon in Scotland. These were, in fact, potato peelings. If we consider the results of the whole sixteen experiments as being but one experiment we shall find their proportions expressed by the following figures:—

Whole tuber, 333.38, or nearly 2.

Single eyes, 717.87, or nearly 11.

Three eyes, 613.94, or nearly 5.

Parings, 504.69, or nearly 4

(To be continued)

The Potato Blight.

Dr. F. Tidswell (Director) and Mr. T. Harvey Johnston (Assistant Microbiologist), Bureau of Microbiology.

In May last the pronouncement of Mr. Henry Tryon, of the Queensland Department of Agriculture, that 'Irish Blight' existed in both Tasmanian and Queensland potatoes, led to a more than usually close scrutiny being made of potatoes arriving here from the States mentioned. On 3rd June the services of the Bureau were requisitioned with respect to a parcel of potatoes from Tasmania for opinion as to the nature of the disease with which they were obviously affected. The microscopical and cultural examinations then made revealed the presence of the fungus *Fusarium solani*, causing dry rot, and several bacteria amongst which was *Bacillus solanacearum* which is regarded as a cause of wet rot in potatoes; but the fungus of 'Irish Blight,' *Phytophthora infestans*, could not be found. It is well known, however that the fusarian and bacillary rots are often associated with 'Irish Blight,' and that quite commonly they obscure the presence of the latter, and render it difficult of detection. A warning to that effect was given and acted on, and the search was continued through further samples of Tasmanian potatoes, until in one submitted on 5th August *Phytophthora* was detected, and subsequently induced to develop its characteristic fructification and spores. As Mr. D. McAlpine, the Victorian Vegetable Pathologist, has also affirmed that Tasmanian potatoes are affected with 'Irish Blight,' the matter can now be scarcely regarded otherwise than as an established fact.

Descriptions of the 'wet' and 'dry' rots as well as 'Irish Blight,' were reproduced by Mr Butler in his article on 'The Potato' in the last issue of the 'Agricultural Gazette' (August 2, 1909, p. 696), so that in this place it will be necessary only to add such other points as have come within our personal experience. The potatoes with which we had to deal have usually been affected with more than one of the

Look to the saving of seeds of cabbage and cauliflower plants.

conditions previously mentioned, and we have not found ourselves able to distinguish one from the other by the naked eye. Nevertheless, there is no possibility of confusion between them when examined under the microscope, more particularly if the fungoid parasites have been cultivated, and so encouraged to produce their spore-bearing organs. Speaking generally, our experience has been that when the cultivated potatoes are affected with 'dry' and 'wet rot' the predominating growth varied according as the conditions were dry or moist. If kept fairly dry, the *Fusarium* was found to gain the upper hand, and the tubers finally shrivelled into a hard dry mass, covered with a dense, rather short, white or pinkish mould-like growth, consisting of fungus filaments (hyphae), and bearing myriads of tiny, sickle-shaped, septate spores readily discernible under the low power of the microscope. Under moist conditions, bacterial growth was much more in evidence, and caused the rapid putrefaction of the potato, the material of which became soft, slimy, dirty brown or black, and very foul. As already mentioned, either of these conditions could readily overwhelm any *Phytophthora* that might have been present, and perhaps did so several times before we secured specimens in which the Blight became pronounced. Tubers which appeared to us favourable for this purpose showed in areas a rather loosely attached crumpled skin, a little sunken and dark coloured, which was very easily stripped; and immediately underneath this skin, a brownish area dipping more or less into the potato, which is at this region usually softened and often of a faint bluish colour, but it is not thought that this appearance is characteristic of Blight. Material from the affected area examined under the microscope shows the peculiar hyphae of *Phytophthora*, and, if developed the characteristic fructification and lemon-shaped spores. These also can be readily seen with a low power of the microscope. Whilst it would serve no useful purpose to give in this place further details of the structure of this fungus, it may be noted, as a matter of importance, that its hyphae penetrate in

between the cells of the potato tuber, and live there ready to develop when opportunity occurs. The fungus is said to be a true parasite, and to feed upon the living tissue. However this may be, it appears to be able to remain dormant in potatoes for a time sufficiently long to enable infected tubers to be accepted and planted as healthy seed. This seems to have been the way in which the disease has been spread from place to place. On the other hand, when the disease attacks the foliage of the plant above ground its spores are thrust out from the small respiratory openings or stomata on the under side of the leaves, and then may be distributed about the field by wind currents. Under moist conditions the spores can then germinate wherever they are deposited on other plants, and so give rise to fresh infections. Given suitable opportunity for development the issue is devastation.

At the present time it is impossible to say how long blight has been existent in Tasmania; apparently local growers had no suspicion of its presence, so that it is either of recent introduction, or has been present under circumstances in which it does not exert the baneful effects recorded in Ireland and in New Zealand. The latter idea, while quite hypothetical, is certainly not an impossibility—Blight and climatic conditions seem to have been closely related. It may be that even if introduced into this State, it may not succeed in getting an epiphytic footing. There is some comfort in this hope, since this State has, no doubt, been exposed to the risk of its entry. In this disease, as in all others, there must be a stage when it is not recognisable to our unaided senses—one in which infected potatoes could not have been noticed by the inspectors, and in that stage it may have been introduced before before its existence was discovered or even suspected in Tasmania or Queensland. The extra precautions which have been taken since its discovery in May last afford a further measure of protection to this State. As already mentioned, the first samples of potatoes submitted were found to be affected with *Fusarium* and bacilliary rots; these, being serious in themselves were, proclaimed under the Vine and

Vegetation Diseases Act, 1901,' on June 16 last, and thenceforth excluded from importation. No doubt this has helped to exclude also *Phytophthora*-infected specimens. Nevertheless, it is very important that growers, not only in the State's interests but also in their own, should keep a close watch upon crops raised from Tasmanian stocks, and immediately call the attention of the Department to any mal-condition thereof. Treatment in the earliest stages alone offers much likelihood of success. The measures to be adopted have already been dealt with in Mr. Butler's article. We have only to add to them a suggestion with regard to potato-bags, which will be rendered perfectly safe if they are boiled (truly boiled) for at least ten minutes in water.

—'Agricultural Gazette of N.S.W.'

Show Fixtures.

	Oct.
Midland (Saddleworth) ...	8
Yorke town (Yorke town) ...	13
Belalie (Jamestown) ...	13
Penola (Penola) ...	13 & 14
Lake Albert (Meningie) ...	14
Kingston (Kingston) ...	19
Stanley (Clare) ...	20
Strathalbyn (Strathalbyn) ...	22

Secretaries of Shows are invited to forward date of fixtures for insertion.

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View near stable in Plantation, Remarkable Pines, Wirrabara Forest.



The Orchard.

Operations for October.

All pruning, and most of the winter spraying of deciduous trees, should be completed. It should be borne in mind that trees must not be sprayed with the lime, sulphur, and salt solution after they are out in leaf or bloom, as this spray is

very severe on any foliage, and should never be used except during the winter and before the buds burst in the spring. This spray helps to keep in check the various scales which attack deciduous trees, particularly the San Jose scale, and also keeps the trunks and branches of the trees free from moss and lichens.

Under no circumstances should trees be sprayed with any solution while they are in bloom, else considerable damage may be done, but they may be sprayed a week or ten days before they come into bloom, and again as soon as the fruit is well set.

The early part of this month is a good time to apply commercial fertilisers.

— Ploughing. —

It is well to complete the ploughing of all orchards as early as possible, especially where green manures have been grown, in order that the latter may rot before the dry weather sets in. This, of course is of

more importance in the interior than on the coast, where there are usually good rains from time to time throughout the summer. In the latter case, however, it is rather risky to postpone the ploughing too late, as occasionally the rain fails us; and should there happen to be a crop of tares or weeds growing among the trees the ground soon becomes hard and dry and it will not be long before the trees begin to wilt. It is well, therefore, to keep the work up to time, so that should the season turn out a dry one you are not caught napping.

— Spring Planting. —

The spring planting of citrus fruits may be proceeded with as early as possible this month. Whenever possible, choose cloudy or cool weather, and observe every precaution to keep the roots from becoming exposed to the wind or sun, as there are more trees lost by careless handling at time of planting than from any other cause.



Loading Cases made from Remarkable Pine by the S.A. Forest Department.

— Rubbing off Young Growth. —

Trees will commence to grow this month, and towards the latter end it may be found advisable to go over them and rub off all the young growth which is not needed to make the crown of the tree, leaving buds starting from different points around the barrel of the tree where it is desired that the limbs should start from which are to form the crown. Never allow two to start from the same place, keeping them at least 4 in apart, radiating around the tree.

— Grafting. —

Citrus trees may be pruned this month. Grafting of nursery stock trees and vines may be carried out this month. Vines are best grafted just as the buds are about to burst, and after the grafting of deciduous trees has been completed.

White Ants and Fruit Trees.

In many districts white ants are very destructive to young fruit-trees.

The Entomologist advises that every particle of dead wood, stumps, or roots should be cleared out of the ground in which the fruit-trees are planted, and the soil well broken up. If, when planting young trees, the roots and portions of the stem that are covered with soil are dipped into a bucket of water in which a table-spoonful of Stockholm tar has been dissolved, this will keep the white ants away for some time after planting. The tar can best be mixed with the water by letting it drip into a gallon of hot water (do not do this while the vessel is on the fire).

To drive white ants out of the soil, dig in around the tree from $\frac{1}{2}$ lb. to 1 lb. of kainit (German Potash). This will keep them away for some time, but will have

to be renewed if the white ants are numerous, or there is, in old stumps or roots in the vicinity of the trees, a safe harbor for them.

Where the attack is made in the trunks or branches, holes should be opened into them (if the latter cannot be cut off), so that the light and air can penetrate. Ants thus disturbed will leave the exposed parts, and all the scars on the wood of the tree should then be carefully dressed with paint or Stockholm tar to prevent fresh attack.

Mr. C. McDonald, of Killarney, Peak Hill, who tried this plan, reports that he has quite succeeded in getting rid of the white ants from his orchard, where they had proved extremely destructive.

— 'Agricultural Journal' of N.S.W.

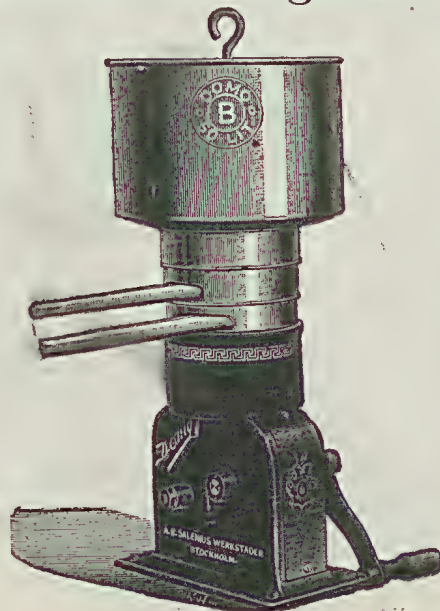
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Spanish System of Growing Orange Trees.

In the second edition of Mr. E. H. Benson's work on 'Citrus Culture,' he mentions 'collar rot' and the remedy for his disease. He also states that, if an orange tree is planted on badly-drained clayey soil, no treatment will prevent or cure collar rot.

The Government Viticulturist of Victoria (Mr. F. de Castella), writing in the February number of the 'Journal of Agriculture' of that State on 'The Orange in Eastern Spain,' describes a remarkable method adopted in that country for the prevention of collar rot. He says:—

'The most remarkable peculiarity in connection with the cultivation of citrus fruits in the Levante is the system of growing the trees over a hole, with the collar and starting point of the main roots exposed to the air. This system is very generally followed. It was at the Granja Valenciana (experimental station and school at Valencia) that I first remarked this curious method, but all the orange trees which I saw subsequently were treated in the same way. The tree is reared, budded, and planted in the usual way, and until about three or four years old is treated much as we would do in Victoria. By this time its surface roots have become sufficiently strong to support it; a hole is dug underneath it, and the tap root is entirely cut off with a saw.

'The hole, which is a foot or so in diameter, and of about the same depth, is not filled up. It remains always open, any dirt or rubbish which may fall into it being regularly removed. When irrigating, which is usually done by flooding, a small dam is made around the tree at a distance of a couple feet from it, to prevent water getting into the hole. The appearance of these trees is very striking; their bases may be compared to large spiders sitting over holes in the ground. The object of the treatment is to prevent collar rot and gumming (Mal de Goma), which used to be prevalent, but now seems to give little

trouble. The sour orange stock is the one usually employed, even for lemons; lemons worked on lemon stock are said to be liable to Mal de Goma. The trees struck me as being very healthy. They were loaded with an abundant crop of fine fruit; in fact, everything seemed satisfactory excepting the price.'

Lemon Culture in Italy.

— Explanation of the Verdel System. —

Mr. G. Harold Powell (says 'Australian Field'), in a lecture before the Lemon Growers' Club of Southern California, in Los Angeles, on 'Lemon Culture in Italy,' gave a detailed explanation of the Verdel system of lemon culture. Mr Powell said:—

'The Verdel lemons are among the best known and finest lemons in the world. The Italians have developed this system to a remarkable degree. Verdel stands not for a variety of lemon trees but for the lemons grown on any trees after they have been treated according to the method of the system.

'If the blossoms at the first part of the year are not prolific or other climatic conditions are unfavorable, and the crop seems destined to be small, the Verdel system is brought into use. The ground around the tree is removed, and the roots are allowed to remain exposed for a period of forty to sixty days, when a strong fertiliser, usually sulphate of ammonia, is placed on the roots and the soil laid over this. Irrigation must then follow constantly, the ground being kept moist all the time until the blossoms are brought forth.

'This insures a good second crop of lemons, the Verdels. The period of picking in Italy is about six months during which time the fruit is plucked about every six weeks. The Italians have no systematised packing-houses and each grower usually packs his own stock. The first-class fruit is all packed for export trade. The work is done chiefly by women.

'The second or by-product lemons are utilised in the manufacture of citrate

of lime, from which citrate acid is later manufactured. The presses and other machinery used in the manufacture of the citrate are nearly all hand or mule power. The finest oil of lemon and orange is made in Sicily. The best of all is produced in a primitive way by hand, and the oil is collected in sponges, dropped, when these are fully saturated, on water, and then blown off the water into any ordinary receptacle.'

Green Persimmons made Marketable.

Mr. George C. Roeding, of Fresno (says the 'Fresno Republican') has just completed a series of experiments with Japanese persimmons, which are of the utmost importance not only to the orchardists of this State but to those of the whole of the southern part of the United States, as far north as the latitude of Washington, D.C. He has succeeded in removing from the green persimmon its well-known astringent quality, so that it will be possible from now on to so prepare the fruit actually on the farm that it may be shipped, marketed, and eaten while still firm, and what is now termed green. The marketing of this fine fruit has always been very seriously affected by the fact that it is not, in its natural state, fit to be eaten until it has become so ripe as to be on the verge of decay, and so not strictly wholesome, and certainly of no use for extensive shipping. This difficulty is now removed. Mr. Roeding has been working on this idea for the past two or three years, but actually produced the fruit in marketable quantities only a few days ago, and had 1,000 lb. of it shipped east by the East Fruit Company of this city, thus putting it into the regular channels of trade. He has also sent some of it in packages to Washington to be inspected by the authorities there. The shipping was done in 20 lb boxes, and the boxes were sent out in refrigerator cars. The process by which the astringent quality is removed from the fruit is simple enough, and is borrowed from a widespread practice in Japan. It is simply to place the fruit in tubs, from

which 'saki' or Japanese 'rice beer' has been lately removed. The tubs are hermetically sealed, and the fruit left in them from eight to ten days. When it is then removed, it is found to have altogether lost the unpleasant quality which one's mouth into a pucker with the first bite. The fruit may be eaten from the hand like an apple. It seems that the fumes of the saki coming from the wood effects the change. For this purpose saki tubs of the regular Japanese make are used. The process is widely used in Japan, where the persimmon is a very valuable product. Some interest was taken in it by the Department of Agriculture of the United States, but Mr Roeding is conducting or has just brought to a successful close the first experiments of the kind in this country.

Mr. Roeding says that the process is thoroughly practical on the farm. He used in his last work eight large saki tubs, each of which would hold 25 gallons, and in these treated 1,000 lb. of persimmons. Thus a wide field will be opened up for this new form of industry by the possibilities now held out of getting the persimmons to the great consuming markets in good condition.

Fruit and Plant Pests in South Australia.

In the course of an interview on his return from the Conference of Ministers of Agriculture in Melbourne, the Minister of Agriculture (Hon. E. H. Coombe) made the following statement to the daily press:—"In discussing the prevalence of fruit and plant diseases in the Commonwealth I could not help feeling that South Australia enjoys an enviable position in its freedom from some of the worst pests. We have escaped such troubles as the fruit fly, phylloxera, pear and cherry slug, and San Jose scale. This speaks volumes for the carefulness of Mr. Quinn and his staff in examining consignments. It is some satisfaction to know, too, that our comparatively dry climate is less likely to favor the retention of the Irish blight than that of the other States; but we must keep in line with

their restrictive policy, otherwise we are blocked in their markets. There was one fact I was not proud of, and that was that codlin moth is worse in South Australia than in the orchards of any of our neighbors, and that this is the only State in which moth-infested apples are allowed to be sold! I cannot help thinking that a great mistake was made a few years ago when the restriction on the sale of moth-infested fruit was removed. This is a matter which the Fruitgrowers' Association should take up, and a request from them to revert to the former condition of things would receive warm sympathy from me."

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Interesting Orchard Notes.

The strawberry growers in England have been having a bad time, owing to the excessively wet spring.

* * * * *

Mr. Rose, of Fairview, Renmark, is reported to have sold a shipment of navel oranges at £1 per case, to arrive in London.

* * * * *

Hatch's Nonpareil, Californian Paper-shell, and Brandis Jordan are three of the best varieties of almond growing in South Australia.

* * * * *

Mr Bruce Pusur, late president of the Fruitgrowers' Association of New South Wales, and a close observer of fruit pests and diseases, says that the Irish blight found in potatoes is identical with bitter pit in apples, black spot grapes, and tomato rot. In some parts of the county of Cumberland, he declares, potato blight has existed in a mild form for several seasons.

* * * * *

The practice of carting stable manure in fruit and vegetable vehicles has been condemned as insanitary. The Public Health department of Victoria has had under consideration the advisability of framing a regulation dealing with it, and meantime municipal councils will have their attention drawn to the practice, and be recommended to at least see that such carts are thoroughly cleansed.

* * * * *

Mr. A. Duthoit, who is interested in the Commonwealth fruit industry, recently returned to Melbourne. He estimates that the average price obtained for Australian apples in England this year has been 9s. 6d. per case. The total export was about 100,000 cases less than the quantity forwarded last year. He says that the disease known as bitter pit militated greatly against good prices. America sent far less a quantity of apples to the English market this year, as compared with 1905. He expects a considerable extension of the consumption of Australian apples and pears in Germany.



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BEE = CULTURE.

Bees in Relation to Flowers and Fruit-Culture.

By Isaac Hopkins, Apiarian, in Bulletin
18 of N.Z. Department of Agriculture.

II IN RELATION TO FRUIT CULTURE.

(Continued from last issue.)

Mr. R. T. Morrison, of Messrs. E. Morrison and Sons, Warkworth, well-known horticulturists, supply the following interesting note regarding cross pollinating experiments which have been carried out at their orchards:—

Three seasons ago a small pear-tree was selected for operations. When the blossom-buds were in the right condition—namely, when the petals of a large proportion of the blossoms were almost ready to break open—the blossoms and blossom-buds were thinned out to, roughly speaking, about one-sixth of what the tree originally held, leaving only such as would open into full flower in about a day or two. These petals (all being of unopened blossoms), together with stamens and in some instances calyx also, were then removed, and the tree was covered with butter-cloth. In a few days pollen of another variety of pear was administered to the stigmas, being placed there by hand and not shaken on, and the tree was again left covered with butter cloth. This pear-tree set and matured a large crop of fruit—in fact, too large—while other trees of the same variety alongside set practically nothing.

Two seasons later (that is in 1905) this same tree was treated in the same manner, except that blossoms were thinned down to about one-tenth; butter cloth or covering was not used; and pollen from another variety (that is a different variety from that from which pollen was taken for the previous experiment) was made use of. Though no covering was used it would appear that the bees would not be likely to much visit a tree from which the petals had been entirely removed. Still, almost every blossom that was treated seemed to set, and the result was a crop much too heavy. Other trees of the same variety alongside had a fair crop, but not nearly so heavy as this

one.

Other experiments with various fruits have been carried out at different times with varying success. The above two instances are perhaps the most striking.

I may mention that bees are very busy agents in our orchards during the blossoming season, when the weather is fine enough. Still, it would be too much to expect that the bees would always be able to carry the right pollen to the right trees at the right time. But no doubt the bees would be even of much more value in the orchard than they are at present if we had the knowledge as to which varieties of a fruit were best for fertilising other varieties, and were to lay off our orchards in such a way as to give the bees the best opportunity of carrying pollen from one variety to the other.

An eminent authority, when speaking of the fertilisation of apple-blossoms said,—

The apple is called by botanists a pseudo-syncarpous fruit, because it may be regarded as five fruits gathered into a unit by an envelope formed by a development of the calyx. If an apple be cut across we see five compartments or dissepiments in the core each one of which should contain pips or seeds. The bloom which preceded the fruit had five stigmas three of which remain in section, and each one of which communicated with a dissepiment or partition, and required an independent fertilisation. Bees seeking honey would, by getting their breasts (furnished as they are with abundance of long webbed hairs) thoroughly dusted with apple-pollen, and flitting to a bloom whose stigma had reached the receptive condition, bring about fertilisation. It would, however, frequently happen that three or four of the stigmata only would be pollinated. In this case an apple though an imperfect one would be produced. Trees agitated by the winds frequently drop a number of their fruits, hence known as 'windfalls,' but the actual cause of this dropping is in by far the largest number of instances defective fertilisation.

Cheshire says in his 'Bees and Bee-keeping' (Vol. i, page 323),—

I had two hundred apples, that had dropped during a gale, gathered promiscuously for a lecture illustration and the cause of falling in every case but eight was traceable to imperfect fertilisation. Such fruits are readily recognised by being deformed, a part

failing to grow from the want of perfect fertilisation. Cutting one such apple across, no seed will be found opposite the undeveloped part. These facts taken together show conclusively how completely our fruit-crop is dependent upon insect agencies, and amongst these the hive-bee takes the most important place.

(To be Continued.)

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 detached house (stone), four rooms,
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 gas, large verandahs, 117 x 171 ft. A
 real gem.

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 plant, fruit garden, $\frac{3}{4}$ mile river frontage

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 cleared, well, new windmill, tank and
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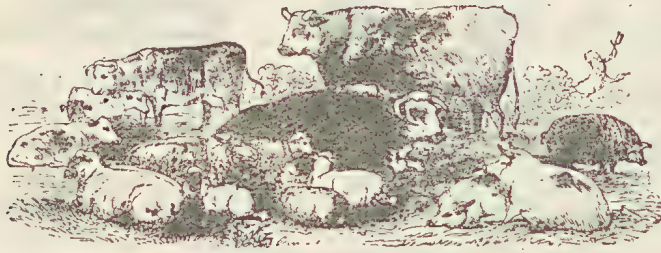
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THE FARM.

Lucerne and Pigs.

No community with high-class swine prominent in its husbandry (says F. D. Coburn in 'Swine in America') is poor. No community with large areas of alfalfa (lucerne) can afford to neglect swine husbandry, for its people possess the material for economical pork production equalled by no others. As a pastime or soiling crop for sows and young pigs alfalfa proves a wonderfully helpful ration for milk-making in the sow and for growth in the pigs. Experiments have shown that pigs make better growth when the dam is fed with considerable alfalfa than those from sows fed with the best of commercial rations but with no alfalfa. Of two sets of pigs, one fed with clover, rape and soaked corn, and the other with access to alfalfa in lieu of clover and rape, those having alfalfa seemed to grow the more rapidly. For brood sows it is a most valuable food, either as hay, a soiling crop, or as pasture. The litters of such sows are generally large and vigorous, and the dams have a strong flow of nutritious milk. Alfalfa meal in slop may be used with profit where the hay is not to be obtained. It is also claimed that sows fed on alfalfa during pregnancy will not devour their young, its mineral elements seeming to satisfy the appetite of the sow, while contributing to the fetal development of the pigs.

On a farm of former Governor Hoard, in Jefferson County, Wisconsin, all the brood sows have for several years been wintered on alfalfa hay of the season's third cutting, and there drink (skim milk from the dairy), without any grain until

the last two weeks of gestation. Mr. Hoard says the object is to give the sows a food that will keep them in a non-feverish state and furnish protein sufficient to build the bodies of the forthcoming pigs. A Finney County Kansas farmer reports having pastured 30 pigs on one acre of alfalfa from May 1st to September 1st, when they weighed 100 pounds each and were in fine condition for fattening. Another Kansas farmer reports keeping 100 pigs from about the middle of April to September on five acres of alfalfa pasture. A little grain during the last two months would have gained him many pounds of pork. Many alfalfa raising pig-growers insist that their pigs can be maintained from May to October on alfalfa for one-half what it would cost for almost any other feed.

The Utah station found that young shotes gained one-third pound a day on alfalfa pasture without grain. But the station found also that the gain was not so great in older hogs. A Wisconsin dairyman reported that he kept nine sows all winter and spring on alfalfa hay and skim milk, without any grain, and raised from them 75 pigs, all healthy and vigorous. The Colorado station considers that a ration of three-fourths corn (mealies) and one-fourth alfalfa hay is the best for fattening hogs for market, but for young hogs not ready for fattening the proportions should be reversed. The station does not recommend grinding alfalfa hay for hogs, probably on the theory that the hog's time is not worth much at best, and he can do his own grinding.

We post 'The Australian Gardener' direct for 3s. 6d. per annum.

Seed Drills.

There are men living who can remember when the first corn drill was started in their own district, and when it was as much a wonder as the agricultural motor now is. Of course, they had been in use for some years in some districts; in fact, it is recorded that Joseph Locatilli, of Corinthia, introduced a crude machine in 1662, but nothing was made until 1783 when Cooke patented his drill, the forerunner of the modern drill, which was worth adopting. Salmon introduced the Bedfordshire drill in 1800, and Smyth the Suffolk drill about the same time, and it was these that placed drilling on a practical footing. One of these drills compared with a modern one, was clumsy and poorly constructed, but marked sufficient advance for the disciples of Jethro Tull to welcome them warmly.

This old world had wagged its hundreds of thousands of years since man had required something to deposit seed quickly and accurately, and had to wait until our grandfathers' time to obtain it. A vast change has come over agricultural machinery since then; nearly every operation of the farm can now be done by machinery; drills in themselves have been improved, but even now drills lack one essential feature—a simple and effective steerage.

By far the best is that which Salmon introduced more than a century ago, but it is associated with a drill of heavy draught and one requiring some skill to ensure regular depth of seeding. There is also the fore-carriage steerage, which a highly skilled man can steer with steadiness on a smooth seed bed, but the meanderings of most work done by it show that it is far from meeting ordinary requirements.

— A Chance for the Inventor. —

When one looks at a modern drill one wonders why the mechanical advantages given to the operator of other implements and machines are not provided on the drill. It may be because many of the modifications which have been introduced have been made by American and colonial makers, who have to provide a

simple drill for their home agriculture; and English makers seem satisfied to utilise their inventions without troubling to suit our own. Why a man should not be able to ride on a drill and operate a few parts, while a man on a binder has so many to look after, seems strange. Wake up, England! Surely a good steerage might be provided that could easily be worked by the feet, if a hand cannot be spared, to correct the inaccuracies of driving; and all other points, such as regulating the depth, might be conveniently worked by other levers. The adoption of a modification of the motor-car steerage ought not to be a great difficulty. Three men—we sometimes set four—and four horses, making a funeral procession to bury wheat, drilling about as straight as an Irishman walks after a prolonged wake, is not good enough for the twentieth century, and wheat at less than 5s. a bushel. The American maker won't provide us with something up to date, and the English maker apparently can't. Where is the successor to Salmon, who, at any rate, did provide a good steerage a century ago? He is wanted.

— Difficulty of Steering. —

Considering how difficult it is to steer the drill with accuracy, and that even with good steerage, only the very highly skilled can make the first draught across a field even decently straight, it is extraordinary that a line is not laid down as a guide, but we have never seen it done. It may be pride on the part of the drill man that prevents it, but it very foolish for a farmer to allow an unskilled man to do bad work on such grounds. Moreover, if most men get a good start, it takes them all their time to keep straight, and where it is intended to horse-hoe subsequently it would be far better if the farmer insisted upon it, and if the man cannot keep straight far over the field to make him lay down the cord again. There would be far less inaccurate drilling if this were done. It seems almost superfluous at sight to say that the coulter should be set exactly at the required distance apart, but if one takes a measure into the field one will find far more inaccuracies in

this respect than one would think possible, except where the master keeps a very close and proper oversight of what is going on.

— 'Agricultural Gazette.'

Prospects of the Season.

The farmers of South Australia have seldom labored under more encouraging conditions than they have this year. Following a remarkable run of good seasons and good markets in practically all branches of the agricultural and pastoral industries, the present year promises to eclipse them all; and there is every likelihood—given good weather for the wheat crop—that South Australia will this year establish a record in production, both in quantity and, it is hoped, in value. The conditions at seeding time could scarcely have been better than they were, and the same good fortune, so far as the weather is concerned, has attended the farmers to the present time. There has, perhaps, been too much rain in some places—especially last month, which was one of the wettest Augusts in the history of the State. Some towns have already had more than their average annual rainfall in eight months. Beyond causing temporary floods, the heavy rain has not done very much harm. In a good many districts ploughing has been impossible, and fallowing has been delayed. It is to be hoped that farmers will not restrict their fallowing in consequence, because it is better to fallow late than not at all. The crops in practically every part of the State are most promising. A splendid hay yield is almost certain, and with a good October a record wheat harvest should be assured. Graziers have been equally as fortunate as agriculturists, the lambing having been good and feed for stock abundant.

—S.A. 'Journal of Agriculture.'

Study your soil, and find out what it needs.

To-day the skilled plant-feeder knows his soil and what it will do as a driver knows his horse, and treats the case intelligently.

Miscellaneous Items.

All permanent growth, all high ideas, are somewhere linked in a dignified way with the soil.

* * * * *

Nearly every spot on the farm can be made to return a profit if the sheep are properly placed.

* * * * *

No amount of work on the soil or in culture will make a good crop of corn unless the seed is good.

* * * * *

Responsibility and profit-sharing will do more to keep the boy on the farm than almost any other two things.

* * * * *

Activity is not objectionable in the horse for general farm work. But it should be activity without nervousness.

* * * * *

The ton of mixed hay contains about 960 pounds of digestible dry matter, while eight tons of silage contain 2,560 pounds of dry matter.

* * * * *

The use of silage for fattening beef cattle has been tested at a number of experimental stations by stockmen, with excellent results.

* * * * *

The four corner stones of successful farming are live-stock, legumes, crop rotation, and tillage. Upon these a wide system of farming can be built anywhere.

* * * * *

Start early and keep your stock in first-class shape this year. 'An ounce of prevention is worth a pound of cure.' It is much easier to keep out internal parasites than to get them out.

* * * * *

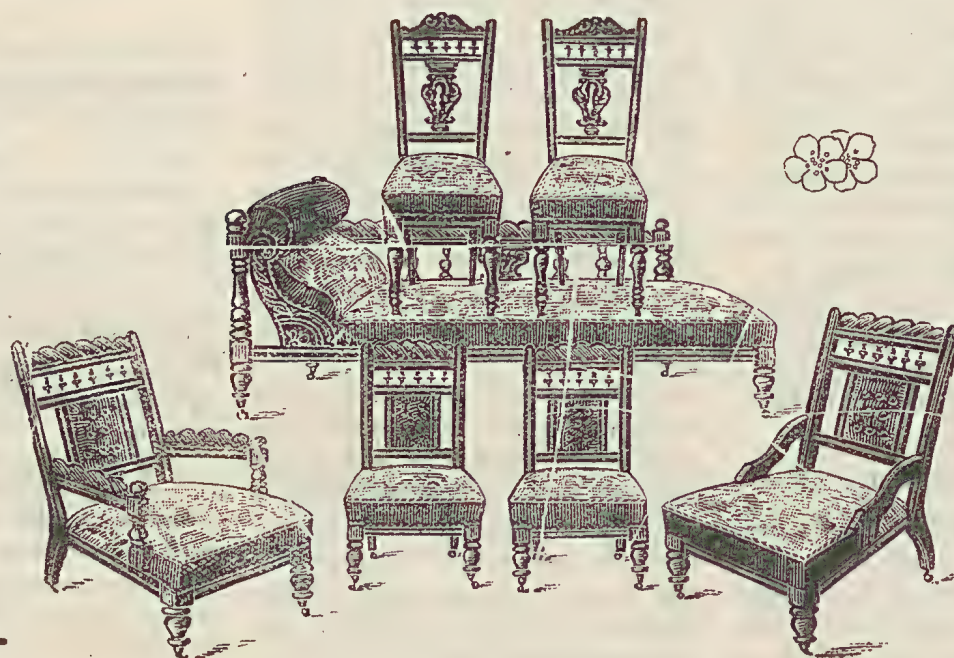
Remember the men who talk loudest against the silo have never tried it. Build a silo, say build two, a narrow one for summer. You can do nothing to help out your pastures that will beat a summer silo.

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THE DAIRY.

Margarine v. Butter.

A Sydney correspondent states that margarine is now being so extensively manufactured in New South Wales that it has completely taken the place of pastry butter, and has reduced the sale of second-class butter very considerably.

Sydney merchants are consequently at a loss to find an outlet for stocks that are accumulating. Since the export season closed, it is estimated that there are fully 8,000 boxes of secondary and pastry butter in the cool store, and from present indications there seems to be no other means of disposing of the surplus than to ship it to London, which would mean a loss to the producers. Six factories in Sydney are manufacturing margarine, and cannot produce enough to cope with their orders. Grocers in some of the poorer districts report that their turnover in margarine has increased 50 to 100 per cent. within a few months, and others who had not sold it before say that the demand is two pounds to every pound of butter. Table margarine is retailed at 10½d. per lb. It is very evident from what our correspondent says that margarine is being largely used for table purposes, and to a corresponding extent is affecting the butter market. To do this the margarine must be got up to resemble butter, otherwise it is hardly likely that grocers would find their turnover for the product had increased 100 per cent. The matter is one to which dairymen should give serious attention. Margarine, when properly made from good material, is a perfectly wholesome product, and if sold as such, and the consumers know exactly what they are buying the trade in it is a legitimate one. But when margarine masquerades as butter, and is bought under the impression that it is butter, then it becomes a fraud, and should be suppressed accordingly.

When cows have ailing teeth they will sometimes drop out the food they have raised into the mouth for re-mastication.

News and Notes.

The disposal of even one unprofitable cow may save in a single year the entire cost of testing apparatus.

The important step in the development of strong and vigorous dairy cows is in the proper feeding and handling of the calf.

Every farmer who is anxious to know what cows in his herd are paying their board-bill each year keeps records of their production.

It appears from observation and experiment that cows with the most highly-strung nerves are, as a rule, the best milkers.

Comfort and abundant feed are the keynotes to success in handling the dairy herds. Without comfort the milk-flow will dwindle.

When a cow has been milked, the milk should be removed at once; every instant it remains exposed in barn air it gathers contamination.

Perseverance and intelligence are the only two things that will win in the dairy. Without these you had better get out of business.

If cheese-makers would cool the milk for one year they would get so much better cheese and so much more money that they would never go back to present methods.

In all the experimental butter made in the last three years there has been no trace of fishy flavour in that made from pasteurised sweet cream churned without the addition of a starter.

It is impractical to establish any system of feeding whereby each cow will receive the same amount of food. The capacity of each cow must govern the amount of nourishment she is to receive.

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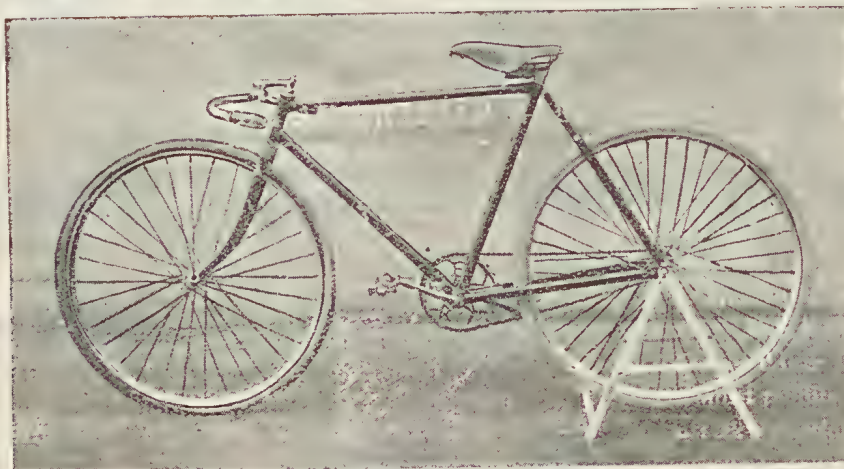
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Built with Birmingham Parts. Interchangeable with B.S.A.
Guaranteed for Two years.

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Guaranteed for Twelve Months.

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Continental

FIRST GRADE.

Guaranteed 15 months.

13s. 6d.

Atlas, Globe Special, Flite

Guaranteed 12 months.

13s. 6d.

SECOND GRADE.

Wyngeel, Globe, World

Guaranteed Nine months.

9s. 11d.

The Champion

Guaranteed Six months.

6s. 6d.



THE

ACME

CYCLE WORKS,

192 Rundle Street.



There will be liberal prize-money and, of course, the competitions will furnish one of the best means of advertisement possible. All poultry entered must be pure bred.'

S.A. 'Journal of Agriculture.'

Poultry Brevities.

Have houses free from draughts and wet.

† † †

Provide fresh, pure water, and plenty of grit.

† † †

Avoid in-breeding, or your flock will soon deteriorate.

† † †

Hatch early in the season, so as to get winter layers.

† † †

Do not keep roosters with laying hens. The eggs keep better if not fertilised.

† † †

Never keep a fowl longer than two seasons. After the second season of laying, fatten up and sell.

† † †

When eggs are cheap, preserve them, or ship to England. When eggs are cheap locally, they are generally dear in England.

† † †

Keep your fowls free from vermin. Limewash their houses, roosts, and nests four times a year, and sprinkle freely 'agricultural' lime or carbolic powder.

† † †

Clean the houses twice weekly. The droppings make excellent manure; and if of no use to yourself, they are worth saving and selling. The droppings of each bird should fetch at least 1s. per year. They are worth more if you can use them yourself.

† † †

Have at least eight hens to each rooster for breeding purposes; and never more than ten. If less are kept, the hens will fall off in laying. If more, the eggs will not be properly fertilised, and either will not hatch, or the chicks will be weak and die.

The Poultry Yard.

A Home-Made Brooder.

Take an empty kerosene box, with lid removed, and place it on its side, in a well-sheltered and covered spot. Take a few strips of flannel about three inches broad, and reaching to the bottom, to the upper end of the box. Fill a stone bottle, holding from half to a gallon, with boiling water, cork securely, wrap in an old blanket, and lay the same on its side in the middle of the coop thus formed, so that the chicks can crouch all round it. This will accommodate from 20 to 30 chicks. Take two boards about a yard long, by 8 inches broad, and nail to the sides of the coop, joining the other ends with a board of the requisite lengths. Cover with a wire netting so as to form a 'yard' or 'run' for the chicks. Food and water should be placed into this run, at the end furthest from the coop. The hot water should be renewed every night, and in cold weather also in the morning.

Next Year's Laying Competitions.

The Poultry Expert writes:—It is intended to continue the egg-laying competitions at Roseworthy, and provision

has been made for 150 pens next year. This will establish an easy record for any one competition, and little, if any, difficulty will be experienced in obtaining the number of entries. At the Kybybolite Poultry Station, near Naracoorte, a competition will also be held. The Commissioner of Crown Lands (Hon. E. H. Coombe, M.P.) has authorised the necessary extension of the poultry station, which will provide accommodation for 50 pens in the laying competition, while 500 or 600 layers will be kept for egg production. At Roseworthy there will probably be three or four sections, to encourage selection and breeding of such varieties as Minorcas, Leghorns other than white, Andalusians, Anconas, Campines, &c. At Kybybolite there will probably be only two sections—light breeds and heavy breeds—a matter which cannot be definitely settled until later on, when preliminary entries are to hand. The present intention is to limit this competition to residents of the South-East, but just where the dividing line will be drawn depends on the support received. I should like to fix Keith or Bordertown as the northern limit, but may have to make the line 10 or 20 miles south of Adelaide. Up to the present excellent support has been promised.

The Young Folks.

Hardships of a Boy.

I like roast beef and lemonade,
And ham and gingerbread,
And apple pie and pickles, just
Before I go to bed.

But Ma she says it wouldn't do
To eat a single bite;
She says that little boys who eat
Such things would die at night.
I'd hate like anything to die,
Yet eating is such joy;
Between the two it's pretty hard
To be a little boy.

Wonders of the World.

A MAN WHO TAMES FISH.

Can fish be tamed? It seems impossible. But there exists a man who says he has done it, and photographs have been taken which prove beyond dispute that he is right. He is a well-known Swiss doctor, Fastenrath by name.

For years Dr. Fastenrath was desirous of testing the tamability of fish, and at last a favourable opportunity of doing so presented itself. He was taking baths for his health in a private bathing-house on the Lake of Lugano when he noticed that in a certain part of this building there lived, near a heap of stones, a family of loaches— in all about a hundred or a hundred and fifty fish. "These loaches, of which the largest was about the size of a trout, used frequently to swim into the bath-house; but, of course, would scurry out when I got into the water." It was these fish which the doctor tried to tame.

To do this he proceeded with caution. At first he sat in the water for a whole hour, quietly holding in each of his hands, which he supported on his knees, a piece of well-soaked bread. The loaches would have nothing to do with him at first. In fact, they were very anxious to avoid him. But this was not for long. "In a little while," continues the doctor, "some of the youngest members of the family ventured, with the greatest care, to nibble at the bread, but, started off in great fright if there was the slightest movement in my hands. Then came a few larger and older fish, and by degrees, in increasing numbers they approached me, even the oldest and largest, until they became exceedingly

friendly. As soon as I stepped into the water they would circle round me, and would make a dart for the bread that I brought. They were not at all disturbed by my movements, I could move as I pleased. I used to lift both hands quickly from the water and plunge them in again, yet they were not scared. They would slip through my fingers, and I used to touch them on their heads and backs, both big and little ones, and they did not mind."

When the doctor got on good terms with the loaches he was photographed in their midst. But, in order that the fish could be shown in the picture, a large white sheet was spread on the ground below the water. Even this did not frighten them away, although heavy stones had to be placed on the sheet to keep it on the bottom, and it was difficult to prevent some of the fish from being stifled under the sheet.

An interesting report was recently made by Dr. Fastenrath to the German Press of his experiments, and drew considerable attention from ichthyologists. To this report we are indebted for some of our details.

What the Sun Tells.

A grey sky in the morning means that fine weather is coming.

A red sky when the sun rises, and the day will be wet.

A pale sunset—rain to-morrow.

A red sky at night—fine weather.

In the summer time, when you see mist round the sun in the early morning, the day will be a fine one.

Conundrums.

What part of a lady is a lad?
Her chin (urchin).

What lady can never visit alone?
Mrs Anderson (and 'er son).

Why is a pretty girl like a bad coin?
Because there is positively no passing her.

When are you not yourself?
When you're a little pale (pail).

Why is every man his own clergyman?
Because he is his own pa's son (parson).

What is worse than a giraffe with a sore throat?
A cenipede with chilblains.

WIT AND HUMOR.

There was once a bulldog named Caesar
Saw a cat and he thought he would taesar,
But the cat was too fly,
And she scratched out an eye.
Now Caesar just saesar and flaesar.

— Fowl Talk. —

"Who broke these eggs?" Judge Drake asked of the prisoner in the dock.

"I'm, guilty, sir," the bantam cried. "I threw a Plymouth Rock.

— True Logic —

"It's no disgrace to fail if you have done your best," said the philosopher.

"That may be so," replied the man who had failed. "But it's pretty rough to have to admit that the best you could do was fail."

— Cross Examination. —

Solicitor: "You reside——"

Witness: "With my uncle."

Solicitor: "And your uncle lives——"

Witness: "With me."

Solicitor: "Exactly. And you both live——"

Witness: "Together."

— Private Jones. —

Post-Orderly (to last-joined recruit, whose letters, addressed "Mr. Jones," have caused much trouble in discovering the owner): "My lad, every man has a rank. You must tell your friends to put 'Private' on your letters."

"Very good, sergeant."

The next letters arrive: "Strictly Private. —Mr. Jones." Collapse of post-orderly.

— Settled. —

In a Lancashire town an inspector visited a mill to see that the owners did not employ children under a certain age.

The manager telephoned through the mill, and all the little ones who were wrongfully employed were hidden in various out-of-the-way places.

Whilst crossing the yard, the inspector happened to observe some fingers protruding from a case, and on lifting the lid he saw a boy sitting down. He asked him why he was there, upon which the little fellow replied:

"Shut th' mouth, mon, and put t' lid down. Doesn't ta know th' inspector's about?"

—Anything Rather Than—

Knicker—'Gassolene says he must cut down expenses. Can't afford to support a wife and five children and keep a motor-car going any longer.'

Bocker—'Can't he get some of his friends to adopt the children?'

* * * * *

— They had Met. —

Young Man (on being introduced, to adore one's mother): 'Pardon me, madam but have we not met before? Your face seems strangely familiar.'

Adored One's Mother: 'Yes; I am the woman who stood up before you for three miles on a tramcar the other day, while you sat reading the paper.'

* * * * *

— The Motto. —

The Magistrate - 'With what instrument or article did your wife inflict these wounds on your face and head?'

Michael Mooney—'Wid a motto, yer anner.'

The Magistrate—'A what?'

Michael Mooney—'A motto—wan of those frames wid 'Hivin Bliss Our Home' in it.'

* * * * *

— At the Pumps. —

Wayward Hobbs—'I used ter be a milkman, lady; after that I wuz a sailor.'

Mrs. Handout—'Quite a difference of vocations.'

Wayward Hobbs—'Oh, I don't know. On my first voyage I wuz at the pumps most of the time.'

* * * * *

— A Tall Story. —

An American, visiting Dublin, told some startling stories of the height of New York skyscrapers.

'Ye haven't seen our newest hotel, have ye?' asked an Irishman.

'No,' replied the Yankee.

'Well,' said the Irishman, 'it's so tall that we have to put the two top storeys on hinges.'

'What for?' asked the American.

'So that we can let 'em down while the moon goes by,' said Pat.

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(Patented No. 2575, 23rd February, 1905.)



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The Ladies' Page

Woman's Work.

To wash and bake, to mend and make,
The steps of weary toil to take,
To cook and scour, to dust and sweep,
And all the house in order keep.
To rise at morn and o'er and o'er
Do duties done the day before,
Yet know that in tomorrow's train
The same old tasks will come again,
And often to herself to say
The old, old lines in weary way,
"From dawn of day till setting sun
"Woman's work is never done"

To watch and pray, and gladly take
Love's crosses for love's crowning sake
To joy and grieve, to smile and weep.
Her deepest thought in silence keep.
To teach and lead, to hope and trust,
Have trust betrayed, as woman must,
To gently chide, to cheer and bless,
And bear with patient tenderness
Her burdens all, not shrink away,
But bravely look ahead and say.
"From dawn of life till setting sun
Woman's work is never done."

A Practical Demonstration.

How do I know what kind of a husband you will make.

Miss Flora Hugton was a practical girl

'Yes, my dear,' she went on to her prospective fiance, Mr. Appleton Dickerby 'we may as well understand each other. What I've seen of you I like. I may say even more. But we'll be a long time married—if we are—and we may as well make sure beforehand. Are you practical? Do you know anything about running a house? You must forgive me if I seem too particular, but it's an important matter for both of us.'

'Of course it is,' said Dickerby, 'and no one realizes it more than I do. Of course I can't exactly say about myself, but I'm willing to do what you want me to, to prove my love and possible fitness for the grand vocation of being your husband.'

At this moment a message was placed in Miss Flora's hands. She read it

hastily, with an almost painful look of anxiety.

'Did you ever!' she exclaimed. 'Here's a note from my sister Jane, who says that her husband, who is on a trip in the north, has just been taken ill, and she must join him at once. She wants me to run over and take charge of the house while she is gone.'

'Perhaps, dear,' said Dickerby, 'I can be of some assistance to you in this emergency, and incidentally'—

Flora smiled gaily.

'So you can!' she exclaimed. 'Just the thing. Why, it's as if Providence had intervened. I'm sorry Charlie's sick but now I know it's for the best. It will be a splendid opportunity,' she went on enthusiastically, 'for me to see what kind of a husband you will make.'

Flora's mind worked rapidly.

'Yes,' she exclaimed, 'I see it now. You can report to-morrow morning at the house. There will be lots to do.'

The next morning, at nine o'clock Dickerby reported at Flora's sister Jane's house, according to instructions. He found her arrayed in a short skirt and shirt-waist, ready for business.

'Excuse my appearance,' she said, 'but you know one has to wear one's old clothes at this sort of thing. Now, first we'll take all the rugs out and put them in the back yard. There's a man coming, but this will help.'

Dickerby took off his coat and got to work.

'Now,' said Flora, when she had finished, 'all the pictures must come down and be dusted'

Dickerby got the step-ladder, and toiled until lunch.

'I've discovered,' whispered Flora triumphantly, as she leaned over the table, 'that the nurse is a traitor. She has been actually abusing the baby! Think of it! Jane is so blind! The cook told me all. I don't dare leave her alone with the little fellow for a moment. Now this afternoon I shall be busy sewing these curtains, and I've let her off on purpose as I'm on the track of another who may come, so I wish you would look after the baby.'

'I don't know much about the manage-

ment of infants,' said Dickerby dubiously. 'Of course, I'm willing to try.'

A few minutes after Dickerby was led into the nursery and introduced to the baby.

Dickerby did his best, but all his efforts seemed purposeless. Every few moments Flora was obliged to respond to his ardent cries.

'I'm afraid,' she said at last, 'that I'll have to give up those curtains. And, by the way, you didn't half take those rugs out; and as for the pictures, why, they are strewn all over the floor. Don't you even know how to hold a baby?'

Dickerby got up.

'No,' he said, 'and I don't propose to learn. I'm glad we've tried the experiment, for I realize as a husband I'm a failure. None of it for me! I've had enough. I shall still continue to love you, Flora, all the days of my life; but I see now that it won't do. I don't know anything about rugs or pictures or babies, or anything else about a house, and I don't propose to learn.'

He dragged himself to the door; but before he could get outside a pair of sturdy feminine arms was about his neck. Flora had hastily placed the baby in the crib and gone to the rescue.

'Do you mean all that, dear?' she asked.

'I certainly do.'

'You'll never raise a finger to do a thing?'

'Never.'

She clasped him to her.

'Don't you see,' she cried, 'that you're just the man?'

Dickerby gasped.

'Do you mean to say,' he cried, 'that you still wish me to be your husband—on my terms?'

'I most certainly do,' she laughed back, 'for now I know that you'll let me alone to do just as I please in my own house.'

—'Scraps.'

To scale fish easily pour on hot water slowly till the curl, then scrape quickly. Wash in several waters, having the last cold and well salted so no slime will be left.

Home Hints.

When making corn meal mush sift a tablespoonful of flour with the meal to prevent the mush sticking.

In molding fancy jellies brush the inside of the mold with the white of an egg and the jelly will turn out easily.

If boiled or roasted meat that is to be used cold is wrapped in a moist cloth it will be more tender.

For the boiled cider of grandmother's day, without which no mince pie or fruit cake was complete, and which kept perfectly for a year or more, boil, slowly, five quarts of sweet cider in a porcelain kettle, watching that it does not burn until reduced to three pints, turn into glass jars or bottles and seal tightly like canned fruit.

— A Hint about Recipes. —

Keep a note-book for tried recipes, and for any changes which you wish to make in the recipes which you are constantly using. By thought and observation one can learn something new in regard to cooking every day. At the time it will seem so important that you cannot forget it, but you will forget it if you do not write it down.

— Cooking Potatoes. —

Potatoes will boil more quickly if two kettles of boiling water are prepared, one of which is poured over the vegetables and after a moment the potatoes are lifted into the other kettle, and boiling will not cease. When potatoes are to be baked, if they are thoroughly heated on top of stove (turning them once) they will bake in half the usual time.

— Rinse Out Soap. —

All the women with heavy heads of hair know how difficult it is to rinse the soap entirely out of their hair, for no matter how thoroughly they may try, there is generally a little left in, which often comes off on the comb several days afterwards. If after a good rinsing in three waters the juice of a lemon is added to the fourth and last water, having the bowl about half-full of lukewarm water, you will find the hair will dry glossy, soft, and with absolutely no trace of soap left in it.

— Eating Between Meals. —

Children who are allowed to eat at all hours of the day are certain to suffer from dyspepsia sooner or later. Give them wholesome meals at regular hours, and they do not need anything at other times. Eating between meals is simply a bad habit, which should be treated in the same way as other bad habits, and cured as soon as possible.

— Care of the Eyes. —

If the eyes are used at night for reading or fine sewing, or for any other careful work, they need an abundance of good, strong, steady light. The children should be required to sit near the table. The eyes are nearly always weak in children recovering from measles, diphtheria, scarlet fever, whooping cough; hence children after these diseases should not be hurried off to school. Whenever the eyes ache, it is a sure sign that they need rest, and under such circumstances their use involves great risk.

— Made of Milk. —

The white handles of those table-knives you bought recently at a surprisingly low figure were very likely not made of ivory, but of a composition consisting largely of sour milk. The deception is, in its way, honest, for the price you paid would not have bought genuine handles of any more valuable substance than bone, and the composition looks better and cleaner, and is more pleasant to use.

The keys of your piano are probably made from this same "milk stone" and why should you grumble? They will keep their colour better than ivory, and you will have the satisfaction of knowing that your instruments has not required the slaughter of an elephant in its manufacture.

— Tired Feet. —

How many times we hear housekeepers say: "I could stand the work well enough if my feet did not get so tired!" If people who are troubled with tired feet could know the relief that comes from the use of cushions placed in front of the table where they stand when dishes are washed or vegetable prepared, they would provide themselves with one or more of these pads. They may be made with several thicknesses of old cloth, bagging, carpet lining, or horse blanket stitched together and covered with old carpet or drugget, the edges turned in and overhanded, and the whole then tacked. Hang it up by two loops when not in use, to keep the edges from curling up. In fact, to prevent this it is not a bad plan to have it oblong in shape.

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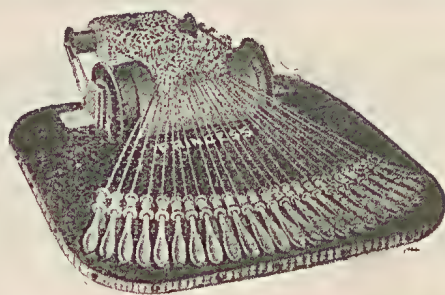
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QUERIES.—Readers are invited to send us queries on any matters on which they want information. No charge is made for the insertion of questions, but the following conditions should be borne in mind. 1. One question only should be written on one sheet of paper. 2. One side only of the paper should be written upon. 3. Querists must forward their names and addresses (not necessary for publication).

ANSWERS TO QUERIES.—The queries sent us will be answered by men who know the subjects, but at the same time we shall be glad to receive answers to any published from readers who can give the information asked for. Our aim is to get our readers to help one another, and no one is better able to help a small gardener than another owner of a small garden who has gained experience in dealing with the many difficulties that have to be faced.

POULTRY MANURE.

A.B., Unley.—You can use poultry manure in the garden generally. Mix it with good dry loam, and use it for onions, or indeed any other crop that needs help. Remember it is very powerful, and do not give a very heavy dressing.

LIQUID MANURE.

'Enquirer,' Parkside.—Have a cask or other vessel almost filled with water. Suspend in it a bag of convenient size filled with manure, and stir it occasionally. Use the clear water. Do not, as you appear to intend, put the manure loose into the water. You will be able to see when the manure in the bag is exhausted, and should then replace it with a fresh lot.

Slug Pest.

The inquiry of 'Disheartened,' (Parkside) in our September issue for a reliable method of ridding his garden of slugs, has brought forth replies from three of our readers, which we publish with many thanks to the writers.

'Never Despair,' Rose Park, writes:—'I can sympathise with those who are tormented by slugs. Last year I had the greatest difficulty with my Dahlias but at last got over it by putting small heaps of bran, in every direction, among the plants. No slug will condescend to Dahlia when he can get bran; so every evening, about ten, and every morning at dawn, I sallied forth, armed with a pair of scissors, and, at night, a lantern, and slew the slugs by scores; the first few days the bran-heaps were perfectly black with them.'

D.A.H., Mount Barker, writes:—'In attempting to kill slugs with lime that has been stored for any time gardeners are only wasting their time. Good quicklime, fresh slaked and hot, is the first condition of success in this mode of slug-killing. The second is to apply it at the right time. It is somewhat difficult to settle this by the clock; but easy by observation to determine the right time by the state or condition of the slugs. When they are feeding slugs are most vulnerable. Dash the burning powder upon them when fully distended and open-mouthed; a sudden and, consequently, a merciful death puts an end at once to their ravages and sufferings. When partially burnt, slugs often change their position, or cast their coats, and when dosed a second time, in this semi-

helpless and vulnerable state, they perish at once. Two small dressings are better than one heavy dose. It may be added that the most active feeding times with slugs are soon after day dawn in the morning, and just after twilight fades into darkness at night. Any time, too, after soft showers of rain, the slugs come out in force, seeking what seedling germs or green things they can devour. It must be borne in mind that all such dressings lose their destructive potency a few moments after touching the ground; the moisture of the earth slakes the lime, and there is a speedy end of its powers as a slug destroyer. Little and often is therefore the great secret of success. Another point of great moment in our war against the slugs is to attack them over the entire surface of the garden. Not a few attack them on seed-beds, or several patches of plants only; but where slugs abound, grass, gravel, vacant ground and especially living edgings of Box, Saxifrages, Pansies, Sedums, Violets, Thrift, etc., must be carefully and frequently sprinkled, if we would come off conquerors in this warfare.'

S.H., North Adelaide, has the following advice to give:—'Having suffered much from the rapacious slug, and being unable to seize the best hours of the day—viz., early morning and dusk—for the execution of justice upon the freebooters, I offer my fellow amateurs two suggestions of plans, which I have found practicable and fairly successful. The first is to search among the leaves and just about the roots of such plants as show signs of being attacked, or appear likely harbours for the enemy, whenever the ground is at all damp. Then follow up the search day after day, for where a slug has been, another probably will be. Leave any plants they may have destroyed for a little while, to serve as traps. Next, where tiny slugs are seen, look in the ground for the nest whence they came, stirring the soil with a small stick or fork. There you will probably find a number of tiny transparent globules, like grains of sago. These are the eggs, which can be easily destroyed ere their inmates have tasted Carnation and Campanula. Although for every slug slain an army appears to advance to avenge its death, yet perseverance must at length reduce the numbers, for dead slugs produce no families.'

EDITORIAL.

THE first fruits of the season are coming now apace after a brief spring following quickly upon a long wet winter. Strawberries were the first of what will now be a big list of summer products. Those who have strawberry beds in the early sun kissed spots are taking a good price, and very fine are the early fruits. Following hard upon these the main crop is coming and under favourable weather conditions the season promises well. This, however, is a doubtful prophecy if the experience of last year goes for anything. Then the fruit was really beautiful for about one month, when the sun gathered abnormal strength and burnt up the crop in about half the time it should have lasted under fair average conditions. The weather is a great factor in the growth of all crops, but strawberry culture is peculiarly sensitive to adverse conditions. Few crops pay better for cultivation but much of the profit depends upon the quickly gathering heat and dry weather conditions. Up to the present everything is in their favour, and with a fair alternative of sunshine and rain we can heartily wish the growers the best of good fortune.

The prospects for pip fruit are also good and if the sprayer has been kept well going the fruit that has set should develop into a record for the apple export trade. It is a pity that the growers and buyers cannot come to some sensible arrangement regarding the standard size of cases. Our own opinion is that the fruit should not be sold by the case as at present, but like most other produce by the weight. A standard price of so much per pound weight would be fairest method for both grower and buyer. The retail buyer has to pay by weight and so should the wholesale. In that arrangement the standard case should be fixed to weight at a fair average size for convenience in packing and handling, and the contents paid for according to weight. Under present conditions a bushel of forty lbs weight really contains any number of lbs over or under the quantity according to size and density of the fruit by measurement in a case. But if forty lbs. weight

of fruit were weighed and sold as such the the grower and buyer would know exactly what they were doing and the fruit would be taken at its proper value. The standard size of case would not then be a consideration in value. Few things are more disheartening to a grower than to find that he is not getting fair value for his labour, and capital. The caprice of the market he cannot avoid, and does not complain about, because the two factors in that consideration are weather and consumption, over both of which he has no control whatever and like the philosopher his business makes him, he simply puts up with it. But the conditions of marketing he has a perfect right to complain of if he does not get a fair value for his product as a product apart from the fluctuation of market price.

Many orchardists are ready always to look at the blue side of their incomes, and with a kind innate pessimism prate about the growing competition from abroad. If their complaints were listened to by everybody progress would be no more. In fact it is largely due to this blue aspect of orchard work that Australia is not now the leading apple growing country of the world. Where are the markets for produce they are continually crying. They do not realize the fact that people all over the world are essentially and naturally vegetarian in diet and the habit of meat eating is not natural but a fictitious growth because fruit is too expensive an article of diet.

There never was and never will be sufficient fruit produced to satisfy the capacity of consuming mortals in the matter of food. But the economics of feeding comes so much into consideration of diet that people eat that food which will sustain them the longest at the cheapest average rate meat is the article which supplies that need. If fruit could be supplied at a sufficiently cheap rate for everybody to buy enough they would always buy it. As a casual illustration we need not go further than the eastern people who live almost solely on vegetarian diet.

The Chinese live almost exclusively on rice, but this habit of food supply and demand would not continue if the price were not maintained at the economic value of a low rate of production.

So it should be with western nations whose taste for food covers a very wide range and who find that meat gives them the greatest value in consumption. The argument is thus held that with a growing expansion of output the consumption will be equally well maintained and the paying price proportionately carried.

"SPRING."

"Gentle Spring! . . . in sunshine clad
Well dost thou thy powers display!
For Winter maketh the heart sad
And thou—thou maketh the sad heart
light."

—LONGFELLOW.

With the advent of Spring all Nature blossoms forth afresh. All things and creatures lying dormant through the Winter leap to joyous life in the earth, the air, in the trees, and hedges. Every blade of grass, each newly budding branch, speaks of reawakened hope. The air, lingering softly among the trees, whispers gently of the coming glories of later Spring. We look at these wonders and feel an intoxicating glow creep into our veins, a great peacefulness steal into our troubled hearts; and as we take in great breaths of the warm faintly scented air, we find ourselves making new vows; casting aside the broken pieces of our love, our hope—our ideals; starting afresh, as the earth does when the Spring sun casts his gentle rays over her surface. Richard Jeffries says:—"Earth is always beautiful—always." So it is, but never quite so beautiful as in the Spring-time. Consider the grasses, the trees, the birds, the butterflies—they are all tokens, showing before our eyes earth made into life. We cannot sit under the budding trees, by the flowering hedges, hearing the birds, the insects, watching the swaying branches, and not feel our troubles dwindle—feel them grow small and insignificant beside these wonders of creation, this vast revival of Life. The sunbeams drifting from tree to shrub, slanting across the grasses, brings into strong relief every different tint of the leaves, verging from palest yellow to richest green. Out of the darkness under the sod they have come, the earth upon which we tread so thoughtlessly, scattering our comedy and tragedy of life. What lies beneath we do not pause to consider, indeed many "have not the time" to think about the matter at all. Were they to stop and study the great mysterious beauty, they would marvel that it had so long escaped their notice, and wonder that they had never

felt the exaltation of Spring-time before. Note the tints of the birds' plumage, the butterflies, the flowers—how they all vie the one with the other. Nature never clashes, never gets out of tune, and so when one's "soul is full of discord and dismay" let us turn to Nature in Spring-time. Consolation, sweet and subtle, will come to us, stilling the wild course of our passions and smoothing off the rough corners in our hearts. Nature has affixed no bound for thought. Our thoughts are free to roam at will, and here, away from fetters and traditions, from conventional routine that bind us as a vice, in the cities, our thoughts soar above the sordid, and we gather new harmonies into our souls, and start life anew, feeling refreshed and exalted. Year after year we welcome the vernal season as we welcome no other. Anxiously we look for the Spring flowers, the delicate little plants lifting grateful arms to the warm sunshine, diffusing silent bliss to all who wander in their midst and absorb their wonderful influences. There is freedom, greatness of thought possible here; our eyes travel back from the fields, the hills to the cities. There everything is crooked. The people feel the air of Spring in their nostrils and remark, as they hurry on "Spring is coming." But they learn no comfort from the fact. It is only when we commune with Spring in the fields, the woods, in the hills, that we feel our cares slip from us, and new ideals take their place. Broad is the expanse of beauty, and though we gather its lessons into our soul still there is room to aim higher. We see the slender orchids blown about by the breezes and marvel that their frail beauty is not harmed—but Nature is careful of her delicate plants. The birds know the changes of the seasons as well as we do. In the Summer they are so very, very busy, that they are not often heard, in the Autumn they are delighted at the occasional warm days and when the dreary winter days have passed, and Spring comes, their joyousness is seen and heard by all who care to notice it. As the air of the pure Spring invigorates our body so let these beauties enrich the mind.

"A Lament."

Spring is departing. Like a phantom she goes floating by, taking with her all the bliss and delights of the newly formed, leaving behind things mature, perhaps more beautiful, but not so fresh, the greens are not so tender, nor so various. It is the newly budding trees and hedges, the first flower, the first fledgling, the first butterfly, that brings to the restless, sordid soul of mankind a feeling of peace. When the heart is heavy with hope deferred a wreath of the fresh Spring air revives the spirit and fans into life the flame of Hope. Ah Spring why do you ever leave us? Stay with us, let your elusive beauties be ever with us, spurring us on to try again.

When the tender greens are turning into deeper shades, when the Summer sun slants down in scorching rays upon the earth, the running stream shrinks back into itself, and leaves its course dry and parched, save where the brambles closely intermingled bend over and shield it from the fierce heat, and there as though in thankfulness grow the frail ferns. They remain young to remind us that Spring has been. And when we see them our thoughts travel back to the past Spring days, to the intangible delights of the evenings when we strolled at will amongst the trees and drank deep of their subtleness.

Spring! thou art so full of whispers and of promises, of all the wonders that the earth holds hidden away in her vastness. Thou suggestest all that is possible, all that can be accomplished. Thou art as full of ecstasy as Love, but as Summer and Autumn follow fast on thee, so forgetfulness follows fast upon young love, leaving behind it desolation—sometimes death. But when we are alone with the woods in springtime, the weight of sorrow seems not so heavy, into the soul wanders Hope, whispering fresh comfort to the tired brain with promises of another Spring. How the thought of another Spring cheers the weary mortal, it is as refreshing as the soft rain to the drooping flowers and weary grass. Ah Spring, you are better than Love. Love, like

Summer grows old and sordid and forgetful, but you are always young, always hopeful. Sitting by a stream listening to the insects, the birds, the wind playing hide and seek amongst the trees, we feel a soft mysterious glow of langour steal into our tired brains, and we sleep and dream of happier days to come—and of the happiness that is past. Again we feel the thrill of past joys. And yet we cannot keep the spring, it floats away as vapor and we are left alone. We are old and tired, there is no Spring left for us, it is all Winter, and soon we shall fall asleep, to rest for ever in the dear quiet earth.

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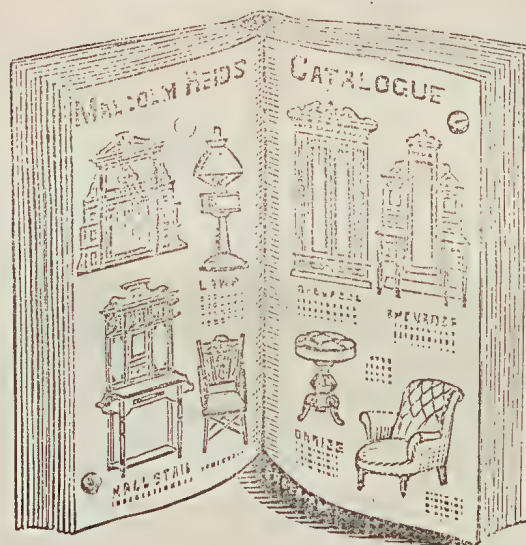
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The Flower Garden.

Operations for the Month.

The present season has been favorable to growth generally, and with fair attention to cultivation of the soil and suppression of insects and fungi, an abundant supply of flowers should be assured during the spring and early summer months.

— Two Important Factors —

There are two factors in gardening during November that require more attention and consideration perhaps than most of the many other features of work. They are soil and water. This month really introduces us to summer, and the temperature is possessed of many vagaries and changes. These changes upset the best calculations in outdoor

work, and worry most gardeners into the feeling that there are other occupations which bring fewer grey hairs than gardening. We have not, however, to deal with those elements that are beyond the control of human beings. Gardeners have plenty to occupy their attention with things immediately under their control and if a blasting east wind comes along and withers up their choicest blooms for show and other purposes, the philosophy of a good temper and renewed energy is worth cultivating. Whether the east winds come or stay away is not the first consideration, but preparation of soil to combat the heat of summer. It must be remembered that evaporation of water is very largely the cause of dryness, and is caused by the plants through the breathing pores of the leaves, and through the sur-

face of the soil. The first cause cannot, of course, be provided against; but a good deal can be done to the surface to keep the moisture in. It is well after soaking the ground by watering or by rain not to turn it up to a great depth, but keep the surface in a loose condition and covered with a mulch of cow-yard manure, the mowings of lawns, or leaf scrapings. Breaking the surface with a hoe or other means of stirring has the effect of breaking or widening the capillary tubes which carry the upward motion of the water, and as the water must be absorbed by some means, it is taken up by the plants or is carried down.

— The Retention of Humus. —

An important element to be considered in the making of soil, is what is known as humus, the black or brown animal or vegetable decaying substances. To maintain a good consistency of humus the accumulations of vegetable matter on the soil, together with manure, must be turned in with a spade. Amateur gardeners often make fatal mistakes in their gardens by raking off all the rubbish, so-called, instead of turning it to decay in the ground. The retention of humus is beneficial in supplying plant food and in improving the texture of the soil. It acts as a kind of mulch, preventing undue evaporation, and consequently keeping the soil moist. In sandy soils this is especially beneficial, and it keeps them warm.

— Soils. —

Worn-out soils are the cause of a great deal of disappointment and dissatisfaction in gardening, and during this month, when the summer annuals will be planted out, it is well that the gardener should have some knowledge of the condition of the soil. If it is poor and starved no amount of water on a parched surface will induce plants to flower with any degree of satisfaction.

What are the characteristics of these worn out soils? As a rule they are light in texture, possess very little cohesion, and fall apart on drying, when also they get a grey dusty appearance, and do not readily take water, as though they were oily in some very slight degree. At



View showing method of training Roses at Malvern Gardens, Victoria.

certain seasons of the year growth is very free on these soils, particularly in early spring and in autumn; but the growth lacks substance, and is very liable to insect or fungoid attack, so that it is very difficult to carry green stuff of the Cruciferous kind through the winter.

It is to the lightness of texture that we must attribute in the main the defects of these soils; they are almost wholly composed of the coarser kind of soil particles classed as sand, and they contain a very small proportion of the finest particles which may be termed clay. Soils composed chiefly of coarse particles possess very little retentive power for water; the surface exposed by the particles is comparatively small, so that weight for weight there is less surface which remains wet after rain in a coarse than in a fine-grained soil; the channels also between the particles are naturally larger, and allow water to drain away more readily. This explains why the soils we are considering 'dry out' so readily, but other consequences also follow. A dry soil is a warm soil, or rather is more easily warmed and cooled, and is, therefore, more susceptible to daily and seasonable changes of temperature than a soil well supplied with moisture. Hence we get a state of things which is not entirely congenial to vegetation—early spring growth due to the ready warming up of the

soil, followed by checks caused by short spells of drought which would not effect a soil initially better provided with water, or by overheating while the roots are still near the surface, and lastly a renewal of growth in the autumn, when the warm soil is again provided with plenty of water.

All such changes and checks tend to curtail the period of growth, and force the plant into producing flower and seed before it has accumulated a proper reserve in its early period of vegetable activity. From the chemical point of view, the small proportion of water retained by the soil affects the crops injuriously; the comparative warmth stimulates those decay processes in the soil which convert the insoluble nitrogenous compounds of humus or manure into the nitrates which serve as food for plants; but, on the other hand, not enough water remains in the soil to bring into action the sparingly soluble reserves of mineral food. Hence the nutriment which reaches the plant is badly balanced; the comparative excess of nitrogenous over the mineral food results in a soft growth, susceptible to attacks of disease.

Per contra, a moderately strong soil, which is capable of retaining a considerable proportion of the rainfall, and which also is fine-textured enough to be able to lift water from the subsoil by

capillarity, only warms up slowly as the season advances. Growth is therefore, slow and continuous, and not liable to checks through drought; it is also more prolonged, because the ground parts with its heat more slowly in the autumn, just for the same reason as it rises in temperature more slowly in the spring. Such continuous and prolonged growth is the most favorable to vegetation, and results in high quality in the produce.

— Watering. —

Assuming that the gardener has worked up his soil to something like a fair condition of richness with its top-dressing of mulch, it will be in a proper state to receive watering. It is a great mistake to water a garden every day. Two or three times a week in the hottest weather is all that is needed. Give a plentiful supply, so that the soil gets a thorough soaking, and the plants will flourish far better than continually keeping the surface moist. The water is wanted at the roots, not on the surface.

— Roses. —

Roses everywhere have been excellent this season, but they will soon begin to wane. Aphis is making its appearance, and unless this pest is speedily checked it will rapidly spread, and do a lot of harm. Frequent hosing with the Yean tend to keep the plants clean; in

fact, some growers use no insecticide whatever; they rely solely on powerful sprayings with clean water. But it is better to use some well-known insecticide such as Gishurst compound, tobacco was, and soft soap. Quassa chips infusion is an excellent remedy for aphids:—Take 1 lb. of the chips and place in eight gallons of water. Boil until reduced to six gallons, strain, and then add 3 lb. of soft soap. This is to be sprayed on to the affected plants. Many kinds of roses, the Banksias, Fortuniana, Jersey Beauty, Aglai, Carmine Pillar, and some of the Ramblers, should be pruned back immediately they have done flowering. All other kinds of roses, the teas, hybrid teas, and hybrid perpetuals, should have all decaying blooms removed, cutting back the shoots several inches, say two or three eyes. To allow seeds to form means a weakening of the plants. A liberal mulching at this stage with stable manure will help to keep the roots cool and moist, and give nourishment to the plants as well. The mulching material should not be placed close up to the stem of the plant, but it should extend at least a couple of feet from it. Before the mulch is applied remove any suckers which may be visible. If a good autumn display of flowers be wanted, the plants should not be stimulated into active growth at this time by liberal waterings or the use of liquid manure; a kind of partial rest should be aimed at.

— Transplanting. —

When planting out annuals, biennials, and perennials this month careful note of the weather should be taken. It should be obvious to any gardener that tender young plants taken out of their nursery quarters to do battle in the open borders should not be moved during a scorching sunny day or a killing east or north wind. A cool, cloudy day, early morning or evening is the proper time.

— Herbaceous Plants. —

Herbaceous plants require a fair amount of moisture to enable them to produce fine flowers. Many kinds as perennial Phlox and others will be benefited by a top dressing of a rapid acting fertiliser, which should be lightly worked

into the soil and well watered. A mulch of manure will materially assist the flowering in addition to keeping down the weeds.

— Tender Annuals. —

Seeds of tender annuals may be sown, and plants from former sowings transplanted. If the plants are carefully removed during cool days, or in the evening, and watered, very little check is likely to follow the removal.

— Dahlias and Chrysanthemums. —

These should be progressing well, but may need water. This should be applied in good quantity at a time, and means be taken that the water soak well into the roots.

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CACTI PILOECREUS SCHOTTII.

CACTI.

The Growth of Cacti in Gardens.

[By L. Graebener, Director of the Grand Ducal Court Gardens, Karlsruhe, Baden.]

I allow that Cacti have been grown in gardens, even in botanical gardens, in many and incorrect ways, all calculated to injure the plants. In earlier times even greater mistakes were made. As a matter of routine Cacti were treated, and indeed still are in some places, as purely desert, wilderness plants, whose habitat is sterile, stony ground, where they are exposed to the full blaze of the sun. Acting on this belief they were grown in light sandy soil, with very little water. The more nearly their native conditions were copied the better pleased their



Cactus Group at St. Catherine's, Prospect, South Australia.

growers were. Time has taught us otherwise. By growing exotic plants we have learnt that it is not a good plan to try to imitate the original environment in part only, while we cannot imitate all the conditions, e.g., air, light, and sun, heat &c.

We now grow plants successfully in shade whose home is in full sunshine; give good soil to those from poor ground, and water those from dry countries. This is the way in which orchids and tropical plants used commercially are grown with us, and now we treat Cacti the same way. I have worried myself a great deal about Cacti, having planted them in the old way in sandy loam mixed with many kinds of small stones, keeping them both in the full blaze of the summer's sun, and also in winter. The result was what you might expect — infinitesimal growth, withering rather than thriving, rough pale appearance, and very mean show of blossom. There are even now gardens where this plan is followed, with, of course, no good result, while in other gardens the opposite error is made; that is, sheltering plants both in summer and winter, so that they are enfeebled before spring comes.

Cacti require fairly rich soil either when grown in pots or planted out. I use a nourishing compost, mixed with sand, to which I add some loam for Opuntias, Mammillarias, Cereus, Echinopsis, and Echinocactus, and some peat for Phyllocactus and Rhipsalis. In the beginning of May I plant out badly grown or weak plants in a frame with bottom heat produced by a two-foot layer of horse manure. While transplanting I remove all old soil, thoroughly cleanse the roots, and take the opportunity of destroying any mealy bug with rectified spirit, to which a little extract of bitter gourd is added. This routine does not hurt the plants, which I then place close to the glass, keeping the 'lights' always at the same inclination. The air supply is diminished in the evening, and the frames are never shaded even in the heat of summer, when the temperature inside may rise to 122 Fahr. The Rhipsalis and Phyllocactus families only are shaded at midday. The plants must be freely watered and sprinkled, and it is a good plan once a week to give a weak manure water, to which I add water in which hoof parings have been steeped.

Pot plants are treated in the same

way, transplanted in April or May, and again in August, early in the month, so that they may make good roots. For tall plants I have a special frame, with glass on all sides. Pot plants must be started in heat, i.e., the frame must have bottom heat, the pots at first standing on the ground, and then, as the latter cools, are sunk in it. Well fed plants will not suffer from cold, then, being well warmed by the sun. I do not advise a second heating of the frame, not caring to grow Cacti like Lettuces. The situation in winter should be bright, and as dry as possible.

TRANSLATOR'S NOTE.—This very suggestive paper on the feeding of Cacti is from an article in 'Die Gartenwelt,' and should interest the growers of Cacti in Australia. In our country some blinding of the glass would be necessary on account of our great sun temperature during heat waves. The translator has grown many Cacti on 'the starvation principle,' and thinks that a few experiments in Herr Graebener's treatment might lead to interesting results.

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Schizanthus Grahami niveus.

Description of Flowers.

Schizanthus.

The Schizanthus, or Butterfly Flower, is a hardy annual of great beauty and gracefulness, very showy, and easily cultivated. It is of branching elegant habit, and practically covers itself with peculiarly-shaped flowers.

The Schizanthus may be procured in various colors. Grahami carmineus is a pure red, Grahami niveus snowy white, and papilionaceus is spotted and laced purple and yellow, shading to crimson. Wistoniensis is one of the best varieties, the foliage being very graceful, and the colors of the flowers varying from delicate pink and white to rose and crimson. The Schizanthus illustrated (Grahami niveus) is most useful for bouquets, the foliage being bright green and finely cut, and the flowers very fine.

Cyclamen.

This is another beautiful member of the tribe of tuberous greenhouse plants produced from seed. They may be sown from November to March, are perennials, and present a most charming appearance during Winter and Spring. They remain a very long time in bloom. In raising from seed they require a certain amount of detail care known only to those who study the cultivation. The better plan

for amateur gardeners is to get the seedling plants from the nurseries.

If the reader should, however, desire to try his hand on growing a few from seed, and there is nothing more interesting than experimenting with flower seeds if one has the time to devote to them, we would advise sowing in a soil composed of loam, peat, and a small quantity of fine cowdung and sand. Sow thinly, and cover lightly. Water with a fine rose, and do not let the soil become dry. When the small bulbs are formed, pot off into small pots, taking all the fibrous roots with the plants. In potting, bury the bulb just below the surface of the soil, up to the crown. They require shade.

When the leaves show signs of dying, give less water for a time, but do not let them get quite dry. As soon as they begin to show new growth, re-pot into fresh soil.

Once the Cyclamen is well established very little further trouble is needed. In fact it is said that the tubers will last for twenty years. Being comparatively rare in ordinary gardens their presence when in full bloom is always hailed with delight by lovers of flowers. The peculiar structures of the blooms is at once attractive in their rich setting of good foliage, while their perfume is delicate and sweet.

They will grow in carefully sheltered and well-drained beds, but do not give

fine results that can be obtained from them as pot plants.

If potted in Autumn the Spring blooms will make a lovely show after the corms have been growing about two-years. If this is too long to wait and watch, the best plan is to buy the tubers, although they run into extra expense.

The name of Sowbread given to them seems peculiar to such a graceful and modest specimen of one of Nature's beauties, but it originated from the round, bread-like shape of the tuber, greedily eaten by the boars of Sicily, the native habitat of the flower.

Coleus.

As a foliage plant, the Coleus is very ornamental, the exquisite and varied markings and variegations of the leaves making them highly interesting. They may be grown from seed or propagated by cuttings, and grow very rapidly. In our climate, cuttings strike freely in the open, and the cuttings may be put in where the plants are intended to remain. In districts where no frosts occur, the plants will, with care, continue to grow all the year round. They must be grown freely, in good soil, with plenty of moisture, light, and air. It may be treated as a pot plant, and grown in a conservatory or bush-house. The best plan is to put cuttings in in autumn, keep them in a moderate temperature during the winter, and pot them or plant them out in the early spring.



Coleus.

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About Vegetables.

The Kitchen Garden.

Under the influence of a higher temperature all kinds of vegetables are making rapid growth, but the soil in many districts is getting dry, and an inch or so of rain just now would be much welcomed.

It is most important that the surface soil be kept loose, and not allowed to form a crust and become hard. Especially after heavy rains and also after a few artificial waterings should the hoe or digging fork be brought into use. All ground that has been deeply dug and well worked will retain moisture far longer than hard, shallowly-dug land. In the former case the moisture penetrates deeply, while in the latter it cannot get far beneath the surface, and is consequently more readily evaporated. The great value of mulching crops in a dry season is recognised by all gardeners.

FRENCH BEANS.

Sow more French Beans for succession; in fact, you may put in a row or two every fortnight in order to keep up a continuous supply.

LIMA BEANS.

The Lima Bean was described in our October number, together with advice as to cultivation. Seed may still be sown.

RUNNER BEANS.

This class of bean was fully dealt with in our September issue. More seed may be sown if required.

CABBAGE.

Make small sowing for succession, and continue putting out plants large enough.

CAPE GOOSEBERRY.

Plant out the young plants sown in September if they have made sufficient progress.

CELERY.

Sow Celery seed for early plants. A good, deep, rich, vegetable mould in a moist situation is most suitable. For the seed bed or box, make up a mixture

of fine loam, leaf mould, and sand. Sow the seeds thinly, cover very lightly, preferably with sifted stable droppings or decomposed manure, and slightly shade them. When the plants are up and the rough leaf is a little advanced, prepare a bed by mixing 2 inches of well-rotted manure with about 3 inches of the soil. Level the surface, water thoroughly, and a few hours afterwards, in the evening, plant out the seedlings 5 or 6 inches apart. Slightly shade them, and then prepare a similar bed for planting out for succession. For the final planting, throw out trenches 1 foot broad and 1 foot deep at 5 feet apart from centre to centre. At the bottom, lay 4 inches of well-rotted manure, and dig it in with a fork. Give the whole a good soaking with water. Now, take up your plants, being careful to leave a good ball of earth on the roots. Then take a stiff piece of brown paper, and make a collar or case, and wrap it round the lower part of the plant, leaving the top free. As the top grows this can be lifted. The object of this is to enable you to heap in the soil against the plants without any of it getting inside them. Keep on drawing the earth up to them to within 6 inches of the top. This must always be done in dry weather.

Give plenty of water and occasionally some liquid manure. A little salt sprinkled on the soil once or twice, followed by a good watering, will be beneficial.

Celery matures in 150 days.

CRESS and MUSTARD.

Sow for succession about once a fortnight in light rich soil in drills half an inch deep and 8 inches apart, and sow thickly.

CUCUMBER.

We dealt fully with the Cucumber in our August issue. More seed may be sown in order to keep up a succession.

EGG PLANT.

Transplant if your seedlings are large enough.

LETTUCE.

More seed may be sown for succession, and the plants large enough planted out.

ONION (for Salad).

Sow in shallow drills about a foot apart

and do not cover deeply. When large enough transplant in rows a foot apart and about six inches apart in the rows, and apply liquid manure occasionally.

SWEET POTATOES.

These may be grown successfully in the warmer parts of this State. The tubers are prepared in various ways and eaten like those of the ordinary potato. The flesh is sweet and very tender. There is no vegetable that will stand drought better than the sweet potato, living and making a good growth through hot, dry weather. On the first approach of frost it begins to stop its growth, while a heavy frost cuts it right down.

Sweet potatoes thrive best in a warm sandy loam. The tubers will readily start into growth if laid out in a warm bed and covered about an inch or two with stable dung kept rather moist. The cuttings, or rooted plants, should be planted out in rows. These rows should be about 4 feet apart, and the cuttings should be planted 1 foot apart in the rows.

PUMPKINS, SQUASHES, TROMBONES and VEGETABLE MARROWS.

Make another sowing of any of the above you may require.

RADISH.

Sow either in drills or broadcast, and when the plants are fit thin out to about two inches apart.

RARE.

Make a small sowing of Broad-Leaf Essex Rape in the same manner as Mustard and Cress.

SILVER BEET.

Sow a little seed in rows, and afterwards thin out the seedlings when they have attained a height of about 2 or 3 inches.

TOMATO.

Put more plants out. This excellent fruit was fully dealt with in the August issue of this journal.

NEW ZEALAND SPINACH.

Sow the seed in a bed, 4 inches apart, and when the plants are 3 inches high plant out in light rich soil in rows 3 feet apart each way.

The Pea an Ideal Food.

It is a somewhat regrettable circumstance that the pea, which is one of the most nutritious articles of food, does not meet with a greater measure of popularity says 'Science Siftings.' From the proteid (tissue-forming food) standpoint, it is much superior to oatmeal, being some 80 per cent richer in this substance than the latter, with a high percentage of carbohydrates (heat-giving food) and a small proportion of water. In fact, the pea is an ideal edible since it possesses practically the whole of the constituents in correct proportions for the building up of animal tissue. No doubt during the summer season peas are extensively eaten, though it is to be feared they are even then regarded more as a tasty pseudo-epicurean dish than as a staple article of diet. But it is during the winter that their advantages can be more strikingly secured.

Mulching.

A 'mulch,' or 'mulching' in gardening language, means an extra covering of soil, rotten leaves, or manure, either separately or combined, placed over the roots of plants, either after the latter have been newly planted or at any period during their growth when it may be considered advisable.

The advantages of mulching may be summed up as follows:—

- (a) During the hot and dry summer months it prevents excessive evaporation from the soil, and thus not only preserves the moisture for the roots to absorb, but it also prevents the soil from becoming excessively hot by day and cold by night, thus maintaining a more regular temperature.
- (b) In winter it protects the roots from frost, and also keeps the soil warmer.
- (c) When a rich mulch is applied to newly planted trees and shrubs, it not only has the above advantages but the manurial matters contained

in it are washed down into the soil, and enrich it with food for the benefit of the newly formed or forming roots.

- (d) A good mulching of rich manure to all plants which have begun to develop fruit and seeds is highly beneficial in assisting them to swell rapidly and more quickly. They make a demand upon reserve materials, and, if these are not quite sufficient to meet the demand, it is easy to conceive that the extra food supplied by means of a good mulching will supply the deficiency.

—'Garden Plants.'

Bell-Glasses.

The use of bell glasses in our market gardens is almost unknown. In France we are told that in the neighborhood of Paris alone there are between five or six million used, the largest number in one garden 5,000, and the lowest 100 of these bell-glasses, or cloches, as they are there called. There are in the same neighborhood, 460,000 lights for frames, the largest number in one garden being 1,400, and the smallest number 60. The profits said to be made by French gardeners under the intensive system of cultivation are very large. Salad plants are grown in enormous quantities.

Growing Turnips.

Turnips do best in a rich, friable, sandy loam, in which medium-sized roots of excellent quality may be produced without the aid of much manure. In light, dry soils well-decomposed manure must necessarily be supplied, for if the young plants lack nourishment sufficiently to ensure a healthy growth, insect plagues invariably attack them in dry periods and the crop will be hard and stringy. But perhaps, the most difficult soils to deal with are stiff, cold, retentive ones, for without a good seed-bed successful results are well-nigh hopeless. Under such circumstances it is a good practice to draw

deep drills the required distances, and fill them up with light, rich soil, wood ashes bone-dust, or guano, in which to deposit the seed, whereby the young plant gets quickly into rough leaf, and grows out of the reach of insects. In dry soils turnips are often, in hot seasons, of inferior quality, and it is also difficult to get the seeds to germinate freely and regularly and to induce the young plants to make a sufficiently rapid growth to escape the ravages of the fly.

Tomatoes for Decoration.

Tomatoes are seldom grown in South Australia for decorative purposes; but they are in England and America. At Christmas festivities, where floral decorations are largely used, the stems of the grape-fruited tomatoes, from which the leaves had been removed, both red and yellow kind, and having from twelve to twenty fruits on each raceme, and being as large as good-sized grapes, make a most effective display. The racemes are pendulous, some eight feet long or so, and two or three dozen racemes are usually arranged along a stem. The stems are often wound round tall epergnes and other ornaments, and with them are entwined long, frond bearing shoots of *Asparagus plumosus*. The bright yellow and red colors of the fruits show through the asparagus, and the whole has a most pleasing effect. The tomatoes are also good to eat.



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SEE OUR LIST.

Cultivation of the Potato.

By the Editor of the 'Queensland Agricultural Journal.'

(Continued from last Issue.)

In adopting the principle of the single eye culture, it is requisite that the eye should be taken from large or averaged sized potatoes, for the smaller the potato the weaker its producing powers. The crown eye always grows the strongest, and produces the largest potatoes. The eyes taken from the middle of the potato produce the best-shaped and most uniform tubers.

There are several ways of cutting the potato into single eyes. The principal thing to aim at is, to obtain a fair share of flesh of the tuber to each eye, with the least amount of cut surface. Take any potato and hold it before you with stem end down. You will notice that the eyes are arranged around the tuber in regular ascending rotation from the bottom to the top, similar to the thread of a corkscrew. Now, take a sharp thin-bladed knife and remove the first eye by placing the knife equally distant between it and the eye next in rotation above it, sloping it to the indenture left by the stem, removing the flesh with it.

When the first eye is removed, turn the potato in your hand till the next eye appears; remove this in the same manner, and keep on turning the potato, removing each eye as it appears. These setts should be planted as soon as cut, and a little hot lime thrown over them will absorb the moisture, prevent premature decay, and also the attacks of insects. The above method could, however scarcely be adopted by a farmer who plants large areas of potatoes. As an experiment, it is, of course, very interesting and instructive, and useful as being a simple means of increasing valuable new varieties of potatoes.

Some farmers utterly condemn the time-honored practice of cutting up the potato into setts. One man says:—In all the trials which have been recorded of the potato crops produced from cut and uncut

seed, I have never met with an instance of the cut tubers yielding the most or best. This fact must surely be generally known, and it is most surprising that it is not acted on. The process of cutting may increase the setts by about 30 per cent., but, if the time taken in cutting them, and the decreased yield be taken into consideration, no advantage whatever is secured, but the reverse. A man is far better off with a piece of land planted with 25 or even 30 cwt. of whole tubers than if it were planted with 1 ton cut up to cover the same space. If cutting the potato is done to save seed, that is a very poor reason.

In dealing with the cutting of potatoes the large tubers are mostly cut into three pieces, the medium ones into two, and the small ones are let go whole. Plant the best and largest cut sett side by side with a old tuber; it will invariably be found that the whole tuber produces the greatest number of potatoes, and certainly the largest ones. The difference in favor of the whole sett, I have frequently found to be 2 lb to one plant, and imagine what this means in the case of thousands or tens of thousands of plants. The scarcer and more expensive a variety is, the more it is cut; and, consequently, the worse for the crop, and productive of certain degeneration. It appears to the writer from his own practical experience, that, if potatoes are cut into setts with at least three eyes, the result is equally as good as when the whole tubers are planted, and that in the latter case there will be a larger proportion of small potatoes.

— Sprouting Seed Potatoes Before Planting. —

This is more often practised by cultivators of gardens than on the farm, but it has some decided advantages which all potato-growers may benefit by.

Seed potatoes are often badly prepared for planting, and still more often are not prepared at all. As a rule, they are kept in heaps in the barn or in bags till they are wanted in February or in August, or in a damp shed, where it is usually found that the growths have made considerable progress. The sprouts may be 2, 3, or 4 in. in length. They grow over and amongst the tubers like a network, and

the greater part of them are broken off in moving the tubers, or before they can be separated. Many have little regret in doing this. They think it is necessary, and it is; but it is also exceedingly harmful, and this ought to be remembered, as deteriorated seed is always more or less unproductive. Fancy what the result would be were we to allow our corn to sprout unduly before sowing! The excuse is that potatoes will resprout, and they will; but never so robustly as in the first instance. These long growths take a great deal out of the tuber which ought to be kept in reserve to facilitate the the ordinary growth in the soil, and superfluous growth should be wholly prevented. This is easily accomplished if given timely attention, and I would urge growers that they look to their seed tubers at once.

The first treatment should consist of preventing the growths from becoming long or of a pale color, which occurs when they are kept in the dark. Begin keeping them in the right way by turning the tubers over and removing any diseased one meets with. Do not put them in a heap again, but lay them out in a single layer on the barn floor or some other building where they will be fully exposed to the light and receive a good deal of air. This will not only check the production of long, weakly shoots, but it will green and harden the tubers, and this is a great benefit to them, as a greened tuber is much more hardy to come in contact with the soil than one that has been kept from light and air for six month or more. The growths, which will be slowly produced when laid out in a single layer and in light and air, will be short and robust and altogether different and superior to the shoots drawn up in the heap.

(To be continued)

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The Orchard.

Notes for the Month.

— Cultivation. —

During the month the orchard should be well cultivated, especially in districts where the rainfall is light. The scarifier will also keep the weeds down, and prevents the ground from becoming caked, as after rain, if not stirred up, it soon becomes hard and dry, and the moisture soon evaporates.

— Watering —

Where irrigation is practised, a thorough watering should be given to all trees towards the end of the month. Be most careful to keep the water confined to the furrows, as, wherever the land is flooded it is liable to become hard. As soon as the furrows are dry enough to work, cultivate the orchard twice, and loosen the soil around any young trees with a fork hoe.

— Summer Pruning —

Summer pruning may be started this month, and it is well to go over and regulate the growth of all young trees thinning and shortening back where required—that is where the tree is growing too thick—and pruning or pinching back, so as to keep the tree evenly balanced and symmetrical. This early summer pruning is more for young trees, to aid in directing the growth to that part of the tree where it is most required.

— Codlin Moth. —

Every care should be taken to destroy the Codlin moth, which makes its

appearance about the time the apple-trees finish blooming, lays its eggs on the young fruit and leaves; and after hatching works its way into the apple, and within a few weeks emerges and lowers itself down to the ground by a silken thread and immediately seeks shelter by crawling up the tree and getting into any crack or underneath any old loose bark, either on the tree, or props, or any loose rubbish which will provide a hiding place. The orchard should therefore be kept free of such rubbish and all trees bandaged at a height of about 10 inches from the ground. The grubs will harbor in the bandages, which should therefore be removed every ten days and all grubs killed. Pick up and destroy all fallen fruit.

— Spraying. —

All citrus trees attacked by fungus diseases should be sprayed with Bordeaux mixture. In applying a spray like Bordeaux mixture to citrus trees, it will be found advantageous to apply the mixture in a small quantity at a time, in two successive sprayings, rather than one heavy application, which may run off the surface of the young fruit.

Never fumigate trees for several months after they have been sprayed with Bordeaux mixture, as, if they are so treated, all the leaves will fall off; many of the smaller twigs, and occasionally the top part of the tree, will be killed.

Pigs for the Orchard.

In a district in Germany, the valuable pine forests were being seriously injured by the grubs of the pine moth, and the local authorities turned into the forest a number of pigs to see if they would be useful in destroying the chrysalides of the moth.

The result fully answered their expectations, for the pigs hunted eagerly for the chrysalides; in fact, they seemed able to find them by scent and eat large numbers.

Whereas previously it was not uncommon to find twenty chrysalides to the square yard, there are now hardly any.

And as regards the pigs it was feared that such a diet might make them ill, and that losses would be incurred, but, on the other hand, they have thriven wonderfully well, so much so that it has been decided to let them pass the winter in the forest.

It has been noted in this journal several times that pigs have been found most useful on orange groves, as they root among the roots and clear off fiddler beetles and fiddler grubs; their rubbing against the trunks of the trees also cleanse two or three feet of these of scale, moss, lichens (and White Scale seems to attack from below). The good young pigs do in an orange grove far exceeds the little harm their grubbing among the roots may do, and the untidy look of the grove may be excused for a few months, as this can be easily put to right again.

The best time to put pigs in a grove is from October to January, and also whenever the fiddler beetles are seen. Some people keep pigs in their groves all the year round with no apparent harm, but visible good. This has been sneeringly referred to as "pig cultivation," but net results are what must be considered.—'Journal of the Jamaica Agricultural Society.'

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W. GILL] Remarkable Pines 24 years old at Whyte Park, Wirrabara. [PHOTO.

COOL STORAGE OF FRUIT.

[By W. French, Engineer in Charge,
Government Stores, Doncaster.]

Refrigeration is chiefly of economic importance for the following four reasons:—

- (1) To prevent premature decay of perishable produce.
- (2) To lengthen the period of consumption and thus greatly increase production.
- (3) To enable the owner to market his products at will.
- (4) To make possible transportation in good condition from point of production to point of consumption, irrespective of distance.

Cool storage is a benefit to mankind in that it allows of a greater variety of food during all seasons of the year. Health

and longevity are promoted by the free consumption of fruits, and the placing of fresh fruits at the disposal of even the poorest of our citizens during every month in the year will certainly result in a wholesale benefit to mankind, so far-reaching in its effects as to be incalculable. It adds nothing to and subtracts nothing from the article preserved, not even the water, and in no material sense alters its quality. It causes no change of appearance or taste, but leaves the fruit substantially in its original condition, while it renders it neither less nutritious nor less digestible.

If the right system is installed and it is properly handled, cool storage will produce some remarkable results in the preservation of perishable products. It must not be expected, however, that the quality and condition of the goods are improved by storage. Cool storage does not insure against natural deterioration. Goods for cool storage must be in prime

condition and selected by an experienced person if it is expected to carry them to the limit of their possible life. A cool storage house successfully operated and managed will supply a uniform temperature at the proper degree throughout the storage season. It will regulate the humidity at the proper point and will supply fresh air properly treated to force out the accumulated gases. The storing of unsuitable, imperfect and inferior goods has led to much misunderstanding between the man who stores the goods and the cool storage manager. Both should, if possible, be familiar with the condition of the goods they are handling, the different stages of ripeness, quality and liability to deterioration. Cool storage cannot improve the physical condition of perishable goods and is in no way responsible for damage or decay which may arise from improper picking, grading, packing, or handling before placing in the storage house. If these things are properly



Load of Raisin Cases made from Remarkable Pine, starting for Renmark from Wirrabara Mill. [PHOTO.]

understood much misunderstanding will be avoided and greater satisfaction and profit will result to everybody concerned.

A most important provision and one which should be carried out to the letter is this, that fruit should invariably be packed in open ventilated cases of uniform size. Loss of space and great difficulty in handling and ventilating packages have been experienced in the handling of cases of uneven size and shape.

There is a good deal of misapprehension as to the function of cool storage in the preservation of fruits. This condition leads to frequent misunderstandings which might be avoided and the condition of fruit storage improved if there were a clearer definition of the influence of fruit preservation, of cultural conditions, of the commercial methods of handling and of the methods of storage. The fruit is part of a living organism in which certain processes go forward more slowly in low

temperatures, but do not cease even in the lowest temperatures in which the fruit may be safely stored. It may decay prematurely through rots caused by fungi which lodge on the fruit before it is packed and sometimes afterwards. The cool storage house is designed to arrest the ripening processes in a temperature that will not injure the fruit in other respects, and thereby prolong its life's history. It is designed also to retard the development of the diseases with which the fruit is affected, but it cannot prevent the slow growth of some of them. It follows that the behaviour of different apples or pears in storage is largely dependent on their condition when they enter the stores. If they are in a dissimilar condition of ripeness, or have been grown or handled differently, or vary in other respects, these differences may be expected to appear as the fruit ripens slowly in the low temperatures. If the fruit when stored is already over-ripe

the low temperatures cannot prevent its deterioration sooner than would be the case with fruit of the same variety that was in a less mature condition. If the fruit has been bruised, or is covered with rot spores, the low temperature may retard but cannot prevent its premature decay. If there are inherent differences in the fruit due to the character of the soil, the altitude, and to incidental features of orchard management, or variations due to methods of picking, packing, and handling, the low temperature must not be expected to obliterate them, but rather to retard while not preventing their normal development. Fruits for cool storage and export should be grown on well drained ground.

VARIETIES, KEEPING QUALITIES, AND TEMPERATURES.

— Apples. —

Apples do not improve in grade in cool storage. In handling crop too much care

cannot be given to grading properly before putting in storage. The contents of many packages are injured by the spread of diseases from a few imperfect apples. Rots enter the fruit most easily wherever the skin is bruised or broken, and in the early stages of rot development it is common to see the diseases manifesting themselves around worm holes or bruises occasioned by rough handling, from nails protruding through cases, or from other causes. The attractiveness and the value of the best fruit are often lessened by careless handling. A bruised spot dies and discolors. Finger marks made by pickers and injuries that may occur in transit of fruit all become more apparent the longer the article is stored.

An apple should be fully grown and highly colored when picked to give it the best keeping and commercial qualities. When picked in that condition it is less liable to scald, is of better quality, more attractive in appearance, and is worth more money than when it is picked in greener condition. An exception to this statement appears to exist in the case of certain varieties the products of rapidly growing young trees. Such fruit is likely to be over-grown, and under these conditions the apples may need picking before they reach their highest color and fullest development. Uniform color may be secured by pruning to let the sunlight into the tree, by cultural conditions that check the growth of the tree early in the fall, by picking the tree several times, taking the apples in each picking that have attained the desired degree of color and size. Apples should be stored as quickly as possible after picking especially if the weather is hot. The ripening which takes place between the time of picking and storage shortens the life of the fruit in the storage chamber. The fruit rots multiply rapidly if storage is delayed and the fruit becomes heated. If the weather is cool enough to prevent after-ripening, a delay in the storage of the fruit may not be injurious to its keeping quality.

The best fruit keeps best in cool storage. When the crop is light it may pay to store fruit of inferior grade, but in

this case the grades should be established when the fruit is packed. The bruising of the fruit leads to premature decay. A variety may differ in its keeping quality when grown in different parts of the country. It may vary when grown in the same locality under different conditions. The character of the soil, the age of the trees, the care of the orchard, all are factors which modify the growth of the tree and fruit, and may affect the keeping quality of the apples. The character of the season also modifies the keeping power of the fruit. I would advise growers to wrap all varieties of apples so as to prevent wilting. It has been found that the wrapper may influence the keeping quality in several different ways. It extends the life of the fruit beyond its normal period by retarding the ripening processes. The influence of the wrapper in this regard is apparent, especially at the end of the normal storage season of the naked fruit when the flesh begins to grow mealy from over-ripeness. At this time, the wrapped apples may be firm and remain in prime condition for several weeks, or even months. The wrapper is especially useful in extending the season of early winter sorts, or in making the long keeping varieties available for use over a still longer period. The wrapper may be useful in preventing the transfer of rot from one apple to another. If the fungus is capable of growing in the storage temperature it is not likely that the wrapper will retard its growth, but when the spores develop they are confined within the wrapper and their dissemination is difficult or practically impossible.

Varieties.—Five Crown, Rome Beauty, Jonathan, Munroe's Favorite, Pomme de Neige, Shortland Queen, Stone Pippin, Dougherty, Rokewood, Scarlet Nonpareil, Buncombe, Yates, Stewart's, Morgan's Seedling and Statesman. Good results obtained from three to six months' storage. Temperature, 30 deg. to 32 deg. F.

— Pears. —

Before the advent of the cool storage system, the supply of summer pears frequently exceeded the demand. The markets were consequently demoralised

in hot humid seasons, especially as regards the early varieties; for instance, Williams' Bon Chrétien, which is a difficult pear to control owing to the rapid manner in which it ripens. It has to be sold immediately to prevent heavy losses from decay. It is absolutely essential that the greatest care should be observed in handling of the fruit, and that it be sent with as little delay as possible to cool storage after picking. All bruised or otherwise damaged fruit, either from rough handling or through being affected by any of the many prevalent diseases associated with orchards, should be strictly kept apart for disposal to the best advantage, and should not be cool-stored. Pears should be picked and packed carefully to prevent bruising, preferable in bushel cases. If it is desired to keep pears for a long period it is necessary for them to be picked before they reach full maturity and to be ripened in a cool temperature, say from 50 deg. to 55 deg. F. If the best texture and flavour are to be developed it is a matter of practical judgment on the part of growers to determine the proper time of the season for picking different varieties of pears for cool storage. The stem should at least cleave easily from the tree before the fruit is ready to pick.

Varieties.—Williams' Bon Chrétien, four to six weeks. Temperature, 32 deg to 33 deg. F. This pear must be stored immediately after it is picked, in open ventilated bushel cases, and must be picked as green as possible. Doyenné Bossoch, four to five months. Temperature, 32 deg. to 33 deg. F. This pear improves in flavour in cool stores and is very profitable. Howell, good keeper up to four months. Temperature, 30 deg. to 32 deg. F.

Swan's Orange, Beurré Bosc, Marie Louise, Beurré Golden, Beurré de Capiaumont, Beurré Clairgeau, Thompson's, Bakehouse Bergamot, Broom Park, Kieffer's Hybrid, Vicar of Wigrfield, Madam Cole, Winter Cole, and Bailey's Bergamot are all good keepers up to four months. Temperature 30 deg. to 33 deg. F.

Winter Nelis and Josephine de Malines are the two most profitable pears in cool storage, generally realizing from 10s. to

18s. per case, and will keep from six to eight months at temperatures from 30 deg. to 32 deg. F.

PEACHES, PLUMS, CHERRIES, &C.

Peaches.—Brigg's Red May, York, Early Crawford, Diamond, Late Crawford, McDevitt's Late Cling, Lady Palmerston, and Elberta. These peaches have been successfully stored from 1 to 2 months at temperatures from 32 deg. to 34 deg. F.

Plums.—The following can be successfully stored:—Diamond, Coe's Golden Drop, Angelina, Burdett, Early Orleans, Late Black Orleans, Hill End, Grand Duke, Green Gage, Pond's Seedling, Reine Claude de Bavay, and Japanese.

By rigid attention to quality of fruit providing the best facilities for cool storage, good results may be obtained for a period of eight to ten weeks. Temperature, 32 deg. F.

Cherries.—Cherries are quite perishable and can only be stored for short periods, from ten to fourteen days, at temperatures ranging from 32 deg. to 34 deg. F.

Oranges.—Will keep one to three months. Temperature, 34 deg. F.

Lemons.—Will keep four months. Temperature, 38 deg. F.

Grapes.—Grapes have been stored with good results for three months. Temperature, 33 deg. to 36 deg. F.

Strawberries.—These may be successfully stored for a period of four weeks, if covered with cotton wool. Temperature, 32 deg. F.

Currants.—Will keep four to six weeks. Temperature, 32 deg. to 34 deg. F. Red varieties keep better than black or white, and should be protected by paper covering.

Tomatoes (ripe).—Will keep from one to two months. Temperature, 42 deg. F.

—Victorian "Journal of Agriculture."

The Preparing of Dried Figs.

A correspondent writing to the "Agricultural Journal for the Cape of Good Hope," in July, 1907, thus describes his method of drying figs.

The figs should be pressed when fully

ripe and spread out, unpeeled, on drying trays in the sun, with a slight powdering of sulphur. After the third day they should be turned daily. When sufficiently dried (after six to eight days), they should be pipped in a boiling solution of brine, 1 lb. of common salt to 10 gallons of water. Then after being spread out in the sun for a few hours, they are ready for packing. A few weeks after submitting his sample thus prepared, a buyer in Capetown offered to take 20 tons if he could supply them.

The report upon the sample stated that all who had seen it agreed that was excellent in every sense. It is recommended that the figs should be packed in layers in boxes, with a neatly folded lining of white paper. It should, however, be borne in mind that only the best figs should be dried. There is no greater mistake than to suppose that imperfect, inferior fruit will make other than second or third rate produce when dried. Will not some enterprising person make an experiment of drying figs by this method this autumn? The boxes should contain 2, 4, 6 or 8 dozen figs.

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BEE = CULTURE.

Bees in Relation to Flowers and Fruit-Culture.

By Isaac Hopkins, Apiarian, in Bulletin 18 of N.Z. Department of Agriculture.

II. IN RELATION TO FRUIT CULTURE.

(Continued from last issue.)

In the case of the strawberry—and the same applies to the raspberry and other berry fruits—each little achēnia (popularly known as seed) dotting its surface possesses a style and stigma. The stigma of each of the achēma must be fertilised to produce a perfect fruit; otherwise, if this is but partially accomplished the part unfertilised remains undeveloped—hard, shrunken, and green—when the fertilised portion is fully ripe. Almost any dish of strawberries will furnish such examples.

When we consider that, according to Cheshire, it requires from 100 to 200, or even 300, distinct fertilisations to produce a perfect strawberry, we can realise how necessary it is to have the agents for such fertilisation near at hand when the plants are in blossom. Gooseberries are absolutely dependent on insects, and in fact all fruits are dependent upon outside agencies for their growth and development.

It is well to note here a statement in Cheshire's work that I have not noticed elsewhere, viz:—

There is a tendency to a separation of the sexes in the cultivated strawberry, which Darwin observes 'is far more strongly marked in the United States than in Europe'; and growers will do well to note that plants bearing unusually large blossoms are frequently tending to become male, and produce few fruits, while those of the same variety and under the same treatment that produce small blossoms are tending to become female, and are abundant bearers, while they yield few runners. Without care in selecting, the

numerous runners of the former would ultimately supplant the female forms and so ruin the stock for economic purposes.

When lecturing to some of the largest growers of strawberries in the United Kingdom, Mr Cheshire found them all quite unaware of the above tendency. New Zealand growers are not, I should imagine, ignorant of a fact of so much importance to their success, but I think it well to quote the paragraph.

At the Waerenga Government Experimental Station there is a young orchard of about 40 acres, and as there is no shelter for 'wild' bees less than nearly six miles distant, I have suggested that fifty colonies of bees should be established near by for cross-fertilising purposes.

I may also quote the following authorities:—

Professor L. O. Howard, Chief of the Division of Entomology, Department of Agriculture, United States of America, in his introduction to Bulletin No 1 on 'The Honey-bee,' third edition, issued in 1899 says of bees and bee-culture,—

This branch of agricultural industry does not impoverish the soil in the least, but, on the contrary, results in better seed and fruit crops. The total money gain to the country from the prosecution of this industry would undoubtedly be placed at several times the amount given in the table above (\$20,000,000) were we only able to estimate in dollars and cents the result of the work of bees in cross fertilising the blossoms of fruit-crops. In support of this it is only necessary to refer to the fact that recent investigations of another Division of this Department have shown that certain varieties of pear are nearly or quite sterile unless bees bring pollen from other distinct varieties for their complete cross-fertilisation.

Professor Baily, Horticulturist of Cornell University, says,—

Bees are much more efficient agents of pollination than wind in our fruit, and their absence is always deleterious.

'The A B C of Bee-culture' furnishes much evidence of experiments carried out

by the Agricultural Department of the United States of America and by practical fruit-growers, all of which went to prove the value of the hive-bee in the production of fruit, and the loss caused by its absence. One or two instances will suffice. Mr. C. A. Green, writing to the Fruit grower, published in Rochester New York, said,—

It has now become demonstrated that many kinds of fruits, if not all kinds, are greatly benefited by bees, and that a large portion of our fruit—such as the apple pear, and particularly the plum—would be barren were it not for the helpful work of the honey-bee. Professor Waite, of the Agricultural Department, Washington covered the blossoms of pears, apples, and plums with netting, excluding the bees and found that such protected blossoms of many varieties yielded no fruit. In some varieties there was no exception to this rule and he was convinced that large orchards of Bartlett (Williams's Bon Chrétien) pears, planted distant from other varieties, would be utterly barren were it not for the work of the bees, and even then they could not be profitably grown unless every third or fourth row was planted to Clapp's Favorite, or some other variety capable of fertilising the blossoms of the Bartlett. In other words he found that the Bartlett pear could no more fertilise its own blossoms than can the Crescent Strawberry.

And, again, Professor Waite, when speaking of insect visits to pear flowers, says,—

The common honey-bee is the most regular, important, and abundant visitor and probably does more good than any other species;

And sums up as follows:—

Plant mixed orchards, or, at least avoid solid flocks of one variety. Be sure there are sufficient bees in the neighborhood to visit the blossoms properly. When feasible, endeavor to favor insect-visits by selecting sheltered situations, or by planting wind breaks.

The editor of the Rural New-Yorker says,—

In those great greenhouses near Boston, where early cucumbers are grown, it is always necessary to have one or two hives of bees inside to fertilize the flowers. No bees, no cucumbers! unless men go around with a brush and dust the pollen from one flower to another.

(To be Continued.)

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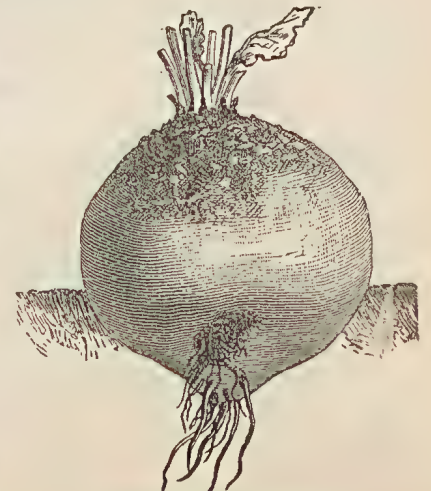
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THE FARM.

Irrigating Before or After Sowing.

Inquiries are frequently received as to the proper preparation of irrigated areas for seeding. Mr. F. G. Chomley, Manager of the Yanco Experiment Farm, states:—

‘It is far better to irrigate first and sow after for all seeds, cereals as well as lucerne.’

‘In irrigating before sowing do not flood the ground, if it can be avoided, but plough furrows from 3 to 10 feet apart, according to the nature of the land. Some soils will soak 5 feet on each side of a furrow full of water; others take a long time to soak 1 foot 6 inches sideways. If there is much to do, and the soil is likely to get hard before it can all be ploughed, run the scarifier over it as soon as the horses can work on the land; in a few days the soil will be evenly moist, and in good condition for ploughing. The ploughed land should be scarified as soon as ploughed, or the crests of the furrows will dry hard. If convenient, harrow or scarify each day's ploughing as the work progresses. In autumn, the irrigating given for ploughing and seeding should, with average winter conditions, carry a crop of wheat, oats, &c., well into spring, when one good soaking, as the seed stalks are starting, should suffice for hay, with, if conditions are adverse, one more for grain crops.’

‘Lucerne sown in autumn must not be irrigated till spring on most soils unless the sowing was done very early and a fair growth has been made, when a light irrigation (if dry weather continues) may be given. Lucerne is more likely to suffer from too much moisture on the approach of cold weather than from dryness. If late-sown lucerne is irrigated before all the seed has germinated, the surface will set tight and the little leaves cannot get through.’

—‘Agricultural Gazette of N.S.W.’

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Cultivation where Irrigation is Out of the Question.

The dry-land farmer must continually bear in mind that in order to succeed he must study the physical characteristics of his soil and take advantage of every possible means of conserving all the moisture that falls, whether it comes during the preparation of the land for seeding, during the growing period of the crop, or after a crop has been harvested. The foundation principle of conservation of moisture is to provide and maintain at the surface a layer of loose soil which serves to prevent the escape of moisture by evaporation. In the majority of cases it will be necessary to conserve the moisture of two seasons for a single crop; and early deep ploughing, summer tilling of the land, and so arranging the crops that two seasons' rainfall will be largely utilised for each crop, are the means of securing the desired results. The dry-land farmer cannot afford to be at all careless about any of these operations. He should also remember that every weed allowed to grow in his cultivated crop saps its proportion of the moisture from the land and robs him of a portion of his just dues.—Report of Wyoming Agr. Exp. Station, U.S.A.

Breaking up of Subsoil by Dynamite.

Kansas farmers show a good deal of ingenuity in pursuing their calling. Nothing comes amiss to them. The question of expense in improving the quality of their ground will not stand in their way if they see a chance of profit in the outlay. Of late they have been operating on the compact subsoil or hardpan which is found in some places. Such stratum checks the growth of cereals, grasses, lucerne, fruit trees, &c., and also affords a poor host for moisture. An ex-Governor of the State, M. S. J. Crawford, tried an experiment with gunpowder. He desired to plant lucerne, a deep-rooter, and the hard subsoil rendered it unlikely that the crop would give good results. An ordin-

ary 2-in. auger was used to bore holes in the ground, from 2 to 6 ft. deep and from 20 to 30 ft. apart, according to the nature of the subsoil. One stick of ordinary blasting powder was placed in each hole, and exploded. The ground was broken up to a radius of from 10 ft. to 15 ft. from each charge, and total wholesale cost of powder, caps, and fuse per acre was 6s. 3d. The holes made were filled with sand or gravel so as to keep them open permanently as a passage way for surplus rainfall. Mr. Crawford contends that the expenditure is repaid by one year's added yield of wheat, maize, lucerne, or whatever crop is cultivated.

—‘Farmer and Grazier.’

Miscellaneous Items.

Potatoes should not be planted in the same soil two years in succession.

* * * * *

Don't wait until you need fodder crops. Put in your seed early, and have plenty of feed for your stock for summer.

* * * * *

If farmers would learn to treat their heifers and cows as liberally, in proportion as they do their horses and hogs, there would be more good cows in the country.

* * * * *

Give the growing lambs every care and attention, but do not forget the children in your own household. They need your thoughtful consideration, for their development and character-building are very important.

* * * * *

Anyone can farm, so can anyone speculate in stock. Without the necessary knowledge one is about as likely to succeed in the one as in the other. Anyone can sow, but only the experienced farmer knows what kind of seed to sow.

* * * * *

There is a great difference in seed value between the different kernels grown in a single head of wheat. To prove this pick the kernels from one side of a head of wheat, lay them on a board in the order in which they grew and examine them carefully.

Employ the best farm hand you can find. A good hand is cheap at any price you are likely to have to pay.

* * * * *

At the present time the world's consumption of fertilisers has been estimated to be about 10 000,000 tons. and every year brings an increase to this quantity, as it's employment extends to fresh countries, and farmers in old countries use it more largely.

* * * * *

Do you want to create the best impression possible on those who come to examine your stock? Then don't select the best and specially fit them, with a few poor ones to be kept out of sight, but have all your stock at their best at all times, and have not only your stock, but all your premises, in such condition that they are open to public inspection at any time.

* * * * *

It has been found that the best practical means of reducing the losses of nitrogen in a manure heap is to place a layer of old, well rotted farmyard manure as a basis for the new manure-heap. This has a distinctly beneficial effect, and always results in smaller losses of nitrogen, possibly because of the constant evolution of carbonic acid from the layer of old manure.

* * * * *

All grains of wheat look alike to the man who doesn't know the difference, but one grain contains sufficient vitality to start the new plant in life with good prospects, while another grain germinates feebly, and begets a weakly offspring, which may not stool out at all, and, if it blossoms into heads, the heads are either barren or contain a few shrivelled kernels that are of little value.

* * * * *

Agricultural societies might make their shows more instructive, especially in respect to the many breeds, if they supplied a little more information. Everybody is not an expert in every breed, and a vast number of those who attend shows, although they may be farmers of very considerable and successful experience, and well acquainted with the points of some breeds, have very vague ideas on the points of others.

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THE DAIRY.

Cool Curing of Cheese.

It is now coming to be generally recognised in all countries where the temperature is likely to rise to a considerable height, that a cool 'chamber for the curing of cheese is an indispensable condition if a high-class article is to be produced. The advantages of cool curing are so succinctly set out in a report on the subject by Mr. J. A. Ruddick, dairy and cold-storage commissioner, Ottawa, that I am quite sure it will be interesting to quote them. If cool storage is advantageous in Canada, it must be absolutely necessary in Australia. Mr. Ruddick says:—'Cool-curing delays the curing not more than a week or ten days. It effects a direct gain by saving from 1 to 1½ per cent in the shrinkage of the cheese during the period of curing. It eliminates the heated flavor and mealy texture which are characteristic of all ordinarily-cured cheese in hot weather, and thus avoids what has been one of the chief defects in a large proportion of the Canadian cheese. It tends to retard the development of bad flavors in many cheese which would otherwise be very inferior on that account. It protects the cheesemaker in some measure from unjust claims arising from causes over which he has no control. Cheese which has been properly cured does not require subsequent storage at an extremely low temperature to check the injurious processes which are set up by high temperature, but may be kept under conditions suitable for developing the rich, 'nutty' flavor which is essential in a strictly fancy cheddar cheese. General improvement in the quality increases the consumption of the cheese enormously thereby increasing the demand, and ensuring a better average price.'

—'Australasian.

Sterilising Milk.

A new process of sterilising milk has lately been patented by a Danish

inventor, Dr. Budde. This process depends on the existence in the milk of an enzyme 'catalase,' which decomposes hydrogen peroxide, with the liberation of oxygen. The milk is heated to 120 degrees Fah., and a small quantity of hydrogen peroxide added. As a result of the reaction which takes place, the pathogenic organisms are destroyed after a short time. The milk is then run into sterilised bottles, fitted with air-tight stoppers.

News and Notes.

No matter how many head of milk cows you own, see that they are proportioned to the productive, not the acreage size of your farm.

If you want the heifer to develop into a profitable cow, you must extend her first milking period as far as possible in order to promote and fix the milking habit.

The best requirements for a good dairy farm are its fertile or capable soil, its adaptability to producing such crops as are desirable dairy feeds, and its nearness to good markets.

Plug up the holes in your milk pails, but never do it with old rags. Solder is cheap and clean.

To get milch cows to do their best and give most the attendant must know each cow individually. He will be acquainted with her capacity for food, and temperament or habit of body.

The addition of a starter to pasteurised sweet cream without subsequent ripening improves the flavour of the fresh butter without adding enough acid to cause fishiness.

There are three classes of cows:—Those that eat food and produce beef from it; those that eat food from which they produce milk; and those that eat food and the Lord knows what they do with it.

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The Poultry Yard

Sunflower Seeds as Food.

It was by accident that the great value of sunflower seeds as a poultry food, especially during the moulting season, was first discovered. Adjacent to one of the pens on a poultry-farm there was a patch of ripe sunflowers, and the seeds had just begun to drop to the ground when the fowls of this particular pen made a way through the fence and ate freely of them every day. The occurrence was unobserved for some time, but it was noticed that the hens continued to lay throughout the moult, and that they moulted earlier and faster than usual, and also earlier and faster than any of the fowls in the other pens. Eventually it was discovered that the birds had found their way to the sunflowers, and this led to the making of a series of experiments (writes an American exchange) which proved conclusively the addition of sunflower seeds to the diet is of great benefit to moulting fowls.

In order to get the hens through the moult and to start them laying again with the least possible loss of time various oily foods are used, amongst which the commonest of linseed-cake and linseed meal, with various spices and condiments; but none of these are as good for the purpose as sunflower seeds, and when fed in moderation none will carry the birds through the strain of the moult in better condition. These seeds are rich in oil of a kind which seems to have the property of assisting the fowls in throwing off their old feathers, and not only this, but

they also contain elements which are specially adapted to the formation of the new feathers. Some time before moulting begins sunflower seeds may be freely fed, commencing with a light meal shortly after the breakfast mash, twice or thrice a week. This may be raked into the litter or fed broadcast in the runs. As the birds get accustomed to the feed it may be fed more freely, increasing the quantity gradually to a meal per day. This may be given in any convenient form that will not interfere with the ordinary feeding arrangements and at any time. Many poultry-keepers prefer to feed sunflower seeds crushed in a mash with other meals. If this course is taken a suitable mash for moulting time will be:—Two parts barley-meal, two parts bran and four parts sunflower seed, mixed with skim milk. It is however quite as good, and generally more convenient to feed the seeds whole for the evening meal allowing as much as the hens will eat at that time. Sunflower seed is an excellent winter feed for egg production, but care must be taken to feed in moderation at all seasons other than moulting time. When fed too freely the seed has been known to produce the remarkable effect of throwing fowls into a second moult. Throughout the winter it should not be fed oftener than twice or thrice a week, and in summer once a week is sufficient. Sunflowers will grow well in a variety of soil but the most suitable is believed to be a rich naturally drained loam.

The West Australia Government has decided to abandon further egg-laying competitions, and also to dispense with the services of the poultry expert. This proceeding appears to be causing 'no end' of excitement in W.A. poultry circles, and a meeting of poultry fanciers at the last advices had been called to discuss the matter. It would seem that the proposal to withdraw Government support to the poultry industry is ill timed, W.A. is still a large importer of eggs. During the first eight months of the present year eggs were imported into West Australia to the amount of £37,226.

Broody Hens.

A correspondent, writing to an exchange gives the following on the 'Broody Hen' subject:—

'It may interest your readers to know of a very simple and effectual method of curing broody hens, without the expense of buying a broody coop or the trouble of making one. I tried it last year with old hens, and this year with a young hen which had been laying splendid eggs, and as I wanted her eggs for setting, I was anxious to bring her on to lay quickly. At 2.30 p.m. on a Monday, I put her in an ordinary coop by herself, and let her out to feed with the others morning and evening. I kept her in the coop Monday night, but the next night I let her sleep in the hen-house. Wednesday morning I found her in her usual place on the top of the nest boxes. brought her out, and she made no attempt to return to the house, and by 2.30 b.m. on Wednesday she was running about with the other fowls, and went to roost on perch as usual. So that it only took two clear days to cure her, and she commenced laying again on the ninth day from the time she had last laid—that is to say, eight clear days between. One of the hens which I cured last year, by the same treatment, was a three-year-old hen, and a splendid sitter and mother and she was glad to roost with the other fowls on the second night. They hate solitary confinement, and I believe isolating one hen in that way is more effectual than putting two or three in a broody coop together, as, in the latter case, they keep each other company, and so encourage broodiness.

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of the Dog.

I.—THE TURNSPIT DOG.

Not only has the dog been trained to draw sledges and carts, but it has also been taught to perform other kinds of work. In some of the little workshops on the Continent, dogs may be seen running in large wheels or drums, which are turned round in this way, and are utilised to turn the grindstone, saws, bellows, or other machines for the workmen. The wheels are about ten feet in diameter, and a little more than a foot wide, and they are raised upon high axles, which hold them off the ground and leave them free to turn, like small water-wheels. Across the inside of each wheel bars of wood are placed all around the circumference, and these serve as steps for the feet of the dog, which is put inside the wheel and made to keep running, and thus treads the wheel round. At the end of the axle of the treadwheel there is a pulley, and a belt passing round the pulley carries the motion of the treadwheel to the machine which is to be driven by it.

At the present time there are no wheels like these in use in England, but not very long ago they were rather common.

In some old houses we may still see the large open fireplaces and wide chimneys which were in use before the iron kitchen ranges, with their ovens and boilers, were invented. In these open fireplaces the fire was placed simply on the hearth or in large iron, basket-like grates, standing upon feet. The joints of meat were put upon spits and roasted before the fire. It was very necessary to keep the spits turning, in order that the meat might be cooked on every side, and in the kitchens of palaces and great houses men were at one time employed to turn the spits. But at a later time it was customary to turn them by means of dog-wheels, and the dogs were in consequence called turnspits.

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It is rather doubtful whether the turnspit-dogs were a special breed, like the bulldog, the foxhound, or the collie. It is more likely that the name was given to any dog which was fitted to run in the wheels, and could be trained to do so. The kind of dog which was most useful was a rather small, short-legged one, which was at the same time strong and fairly heavy; and such dogs are still sometimes called turnspits, though they may differ from each other a great deal in appearance.

The use of dog-wheels was not confined to the turning of spits. More than three hundred years ago they were used at Royston, in Cambridgeshire, for drawing water out of deep wells; the dogs in this instance were mastiffs. I frequently see in an old chemist's shop a large pestle and mortar, the former of which was worked by turnspit-dogs about sixty or seventy years ago. In one remote part of Wales, turnspit dogs were kept in use until only a little more than thirty years ago.

We may be sure that the turnspit often rebelled against his task work. A story which is related of the French astronomer Arago, shows this, and reveals also a sense of fairness or justice in one of these dogs. The astronomer was overtaken by

a storm as he was passing through a small village. He took shelter in a cottage, and as it was about the hour for dinner, he asked the cottagers to cook him a chicken. The fowl was placed upon the spit, which, as it happened, was turned by a wheel. One of the turnspit-dogs was in the kitchen, but when he was called to enter the wheel, he showed his teeth and tried to slink away. His owner explained to Arago that there were two turnspits in the house, and this one objected to enter the wheel because it was not his turn. Arago requested the cottager to bring the other dog, and order it into the wheel. The dog was brought, and at the first sign it took up its task and turned the wheel for about ten minutes. The astronomer then requested the cottager to stop the wheel release the working turnspit, and call up the other. The cottager did so, and the dog which had previously been so rebellious entered the wheel immediately and began to turn it.

W. A. Atkinson in 'The Prize.'

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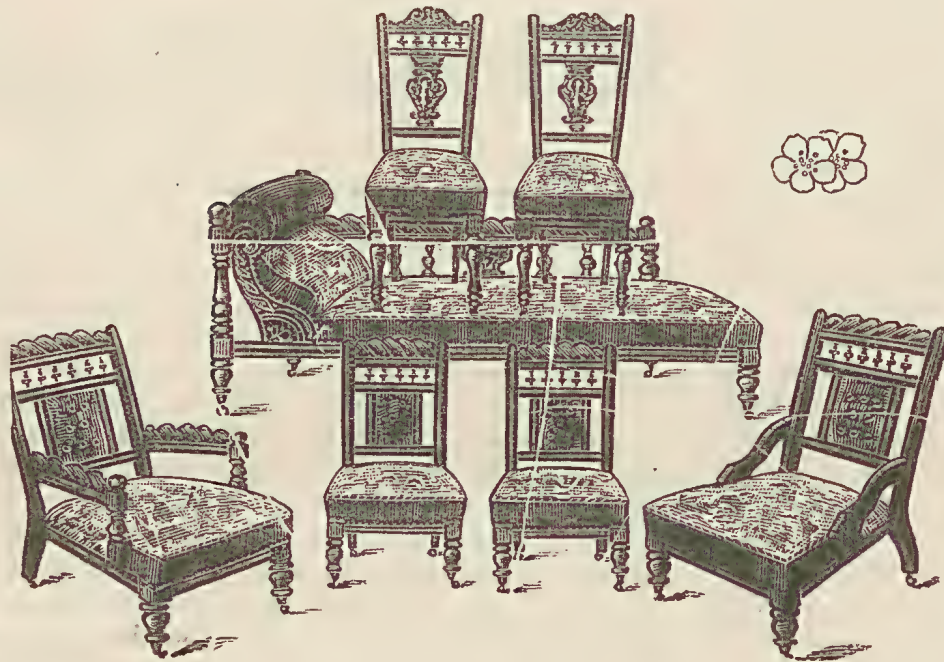
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WIT AND HUMOR.

— Smart. —

"Since Maud's engagement how bright and happy she looks!"
 "Yes, a match lights up a girl's face."

— And Still She Returned It. —

Old Lady—"I want you to take back that parrot you sold me. I find that it swears very badly."
 Bird Dealer—"Well madam, it's a very young bird. It'll learn to swear better when it's a bit older."

— Sugared Up. —

School Master: "What is the principal product of the West Indies?"
 Pupil: "I don't know."
 "Why, don't you know where the sugar you use comes from?"
 "Yes, sir. We borrow it from the people next door."

— He Was Disappointed. —

She laid her cheek on the easy chair against his head, and murmured, "How I do love to rest my head against your head, Augustus!"
 "Do you?" said he. "Is it because you love me?"
 "No, because it is so nice and soft."

— He Got It For Nothing. —

A genial-looking gentleman wanted an empty bottle in which to mix a solution and went to a chemist's to purchase one. Selecting one that suited his purpose, he asked the shopman how much it would cost. "Well," was the reply, "if you want the empty bottle it will be a penny, but if you want anything in it you can have it for nothing."
 "Sure that's fair," said the witty customer, "put in a cork."

— An Ambiguous Compliment. —

Maud: "I wish I knew whether I ought to feel grateful to Mr. Gaboy or to be angry with him."
 Irene: "Why?"
 Maud: "He told me yesterday he didn't know which he most admired—my sparkling eye or my blooming cheek!"

— Who Sent Him? —

Pianotuner: "Good morning. I am here to tune your piano."
 Brown: "My piano! I did not order a piano-tuner."
 "No, but the gentleman across the road did."

— Easy to Remove. —

"Yes," said Quiggles, "I have a good deal on my hands just now."
 "So I perceive," replied Fogg. "Why don't you try a little soap and warm water?"

— It Would Be Costly. —

Ethel—"I—er—suppose you know next week is my birthday—don't you, Charlie?"
 Charlie—"Why, of course I do! Why do you ask?"
 Ethel—"Why, you look so happy I thought you'd forgotten it!"

— The Downfall of 'Gussie.' —

In an Adelaide café recently a 'gent' of the 'Gussie' tribe, after scrutinizing the menu, ordered devilled kidney. The kidney was either not to his liking or else he wanted to be funny, for he called the somewhat smart waitress to him, and the following conversation ensued:—

"Waitress, do you call this devilled kidney?"
 "Yes, sir."
 "Well the devil take it!"
 "He has got it, sir."
 Collapse of the joker amidst the laughter of his companions.

— And He Agreed. —

Husband—"You never kiss me except when you want some money."
 Wife—"Well, isn't that often enough?"

— Not Much Missing. —

Customer—"Are these shoes too far gone to be repair?"
 Bootmaker—"No I don't think so. A new pair of uppers, with soles and heels will make 'em all right; the laces seem fairly good."

— Very Nasty. —

"I have such an indulgent husband," said little Mrs. Doll.
 "Yes, so George says," responded Mrs. Spiteful, quietly. "Sometimes he indulges too much, doesn't he?"
 And they no longer speak to each other.

— Did She Get Her Johnnet? —

Mrs. Phoxy: "I was helping Mrs. de Style to put her winter things away to-day. Oh, she has the loveliest seal johnnet possible."
 Mr. Phoxy: "What? What do you mean by 'johnnet'?"
 Mrs. Phoxy: "Of course, how silly of me, but then, dear, I'm not familiar enough with one myself to call it a jacket."

— A Lesson in Manners. —

A well-known lawyer is telling a good story about himself, and his efforts to correct the manners of his office-boy.
 One morning not long ago the young autocrat of the office flew into the office, and, tossing his cap at a hook, exclaimed: "Say, Mr. Blank, there's a ball game down at the park today, and I am going down."
 Now, the attorney is not a hard-hearted man, and was willing the boy should go, but thought he would teach him a little lesson in good manners.
 "Jimmie," he said kindly, "that isn't the way to ask a favour. Now you come over here and sit down, and I'll show you how to do it."

The boy took the office chair, and his employer picked up his cap and stepped outside. He then opened the door softly, and, holding the cap in his hand, said quietly to the small boy in the big chair:

"Please, sir, there is a ball game at the park to-day. If you can spare me, I would like to get away for the afternoon."

In a flash the boy responded:

"Why certainly, Jimmie, and here is fifty cents to pay your way in!"

There are no more lessons in manners in that office.

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Several Aspects of the Protection of Our Native Birds

[By Walter W. Froggatt, Government Entomologist, in the
'Agricultural Gazette of N.S.W.']

(Continued from August issue).

The same state of things comes about when, through the destruction of a natural check upon its undue increase, a useful insectivorous bird increases more rapidly than under the original conditions of life, so that the food supply is insufficient. Then the same state of things comes about, and the farmers's crops are affected; so some more damage is done—perhaps not as much as it saves by devouring at the same time pestiferous insects, yet so evident that the practical farmer takes steps to destroy by poison or gun a bird he once looked upon with friendly eyes.

Many years ago, on the northern plains of Victoria, the writer watched this evolution of useful to injurious birds take place in the course of a very few years. When he first went on the land it was subdivided into very large paddocks, in which grazed the squatter's sheep. Then came the selectors under the new Land Acts; the station holdings were cut up into small blocks, and fenced

into smaller holdings of 320 acres, or even less.

Under the old regime bird and animal life had not altered much from earlier normal conditions, under which it is quite safe to say that from 25 to 50 per cent. of the eggs and nestlings of the magpies, magpie larks, and numbers of the insectivorous birds fell victims to the hawks, crows, whistling jackasses, and even to our innocent-looking friend the Laughing Jackass.

With settlement came sheep worrying dogs, and the squatter and selector laid poisoned baits, or poisoned the body of the sheep that had been worried, with the result that the hawks, crows, and other flesh eaters were killed as well as the dogs. Within a few years the increase of the insectivorous birds on the plains was very noticeable; as the ploughman sent his team along turning over the furrow, one would see a whole string of magpies and magpie larks behind him picking up the grubs and worms exposed.

The plough and cultivator brought to

hand a fresh, if temporary, increase of food, which meant more nestlings. Then the reaction commenced, the food limit was reached, and one morning the farmer saw the magpies hunting all over the freshly-shooting wheat paddock. At first he rejoiced to see his feathered friends at work for him, probably at a plague of cut-worms or caterpillars. Later on he crossed the paddock and found many young wheat plants pulled up and the soft wheat at the rootlets bitten off. His scientific friend across the creek, to whom he complained, said it was impossible; magpies would not eat wheat, they were insectivorous; if they had pulled the wheat seedling up it was to get at some grub on the roots. Unconvinced, the farmer a few days later shot a couple of magpies that he had watched at work on his paddock, and on making a rough post mortem examination of their stomachs found the bulk of the contents was composed of the soft spongy wheat grains from the ravished wheat-field.

Then he took action and shot magpies until the survivors flew away in disgust. Since then many thousands of magpies have been shot in both Victoria, New South Wales for this acquired food habit.

Here is another instance of the vanishing fauna: In the Capertee district some years ago the writer was visiting an orchard, whose owner stated that during the last two years he had killed 300 native bears in his trees. He explained that the reason of such an invasion was that the neighbouring land-owner had ring-barked some thousands of acres of eucalyptus forest surrounding his place, and as the gum trees died the native bears had to move on or die of starvation; and as his was the only green spot in the neighbourhood they came there, and climbing about on the fruit trees broke branches and foliage; so they were shot. Only when one knows what a multitude of living creatures take up their home on every old gum tree, can one understand what a change must take place in the ringbarking of our forests.

(To be Continued.)

Those desirous of joining the Royal Society for the Protection of Birds should communicate with the Hon. Secretary—Mrs. Somerville, 'St. Omers,' Eton St., Malvern. Any person may become an associate on paying the sum of sixpence (children under 14, threepence), as a registration fee, and agreeing to the objects of the Society. Associates may become members on agreeing to pay not less than one shilling annually.

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For the Ladies.

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Though we may not change the cottage
For the mansion tall and grand,
Nor exchange the little grass plot
For a boundless stretch of land;
Though we have no means to purchase
Costly pictures, rich and rare;
Though we have no silken hangings
On the walls so white and bare,
We can make home happy, we can make
home gay;
Where the will is, always there will be a
way.

We may fill our homes with music
And with sunshine brimming o'er,
If against all vain intruders
We but firmly close the door;
Yet the shadow, should it enter,
Must sincere affection find;
Then we'll reap the choicest blessings
From the choicest lot assign'd.
We can make home happy, we can make
home gay;
Where the will is, always there will be a
way.

Women and the Men.

'Men's only books are women's looks,'
in effect, said the old poet, and there is
much truth in the axiom. Recognizing
this, many women were they pinned down
to verity, would plead guilty to dressing to
please the men, for the eternal feminine
hungers after the admiration of creation's
lord.

Women's clothes and women's adorn-
ment, from the crown of her head to the
tips of her boots, are planned with this
view—to please the men. Perhaps
it would be more accurate to reverse the
order and say from the tips of their boots
to the crown of their head, for it is a fact
that most men notice a woman's boots
sooner than her headgear.

Men like little feet; but as all feet con-
not be little, they also admire well shaped
feet, and all feet can, an authority on the
subject avers, can be well shaded.

A pretty foot is a well dressed foot and
it is easy to dress a foot well. It is

curious to see with what unsightly foot-
wear some women provide themselves,
when they could with the same outlay be
so daintily shod.

Men like dainty manicuring. They are
exceedingly sensitive to the appearance of
the fingers, and if a woman can present a
well-kept pair of hands, she has done a
great deal in the battle for admiration.

Men like bare hands. There is some-
thing babyish about a pair of bare hands,
all devoid of rings. The sight appeals to
a man's chivalry.

Men like reposeful hands. They hate
hands that twitch and play with this and
with that. They like little childish hands
full of dimples—hands that like to lie in
the lap and rest.

Auburn is supposed to attract many
men. Next to that they like jet-black
tresses. The medium shades are less
attractive, though gold-coloured hair is
very acceptable to a man's sense of the
beautiful.

Men like nice hair dressing. It is
really the hair they notice, and not the
style of the coiffure; it is the condition of
the hair itself that they observe.
Neglected-looking hair they notice at
once.

They like hair that shines hair is in
place, with each hair, in studied repose.
They like hair that look as though it had
been prettily arranged.

Women with hair of the famed Titian
tint are fortunate. Men admire them;
so those who possess such tresses have
no need to regret it, as one so often hears
them doing. Men think such hair is
beautiful.

Men like red cheeks, and the red-
cheeked woman has become fashionable.
A doctor says the way to get red cheeks
is to pinch them with the finger tips until
the blood comes to the surface.

Ask a man which of three women he
admires most, and he will unhesitatingly
pick out the one who is the trimmest as
to boots and apparel generally; he ad-
mires the well-groomed woman. A man
likes to see a perfect-hanging skirt, and
he does not stop to ask whether the gown
is plain or costly. What he likes is the
look of extreme neatness.

Home Hints.

— To Cut New Bread. —

It is easy to cut new bread if the knife
be dipped in hot water, dried, and used
before it has time to cool.

— Cooking Vegetables —

A great deal of the unpleasant odour
from boiling vegetables may be avoided
by putting a bit of bread into the water
with the vegetables.

— To Clean a White Fur Boa. —

Put some ground rice into a large
bowl, then put in your boa, and gently
rub all over ground rice till clean. Then
shake well to free the fur from powder.

— Eat Fresh Fruit. —

Fruit, particularly acid fruits, act so
directly on the digestive organs that
unless forbidden on account too great
acidity of the blood, it should form a
generous part of the daily menu.

— Care of Nickel plate. —

Nickel plate must be frequently
cleaned and polished. Clean it with a
mixture of ammonia and washing soda,
and then polish it with a little thin
whiting paste on a leather. If cleaning
of this kind is given every week it will
be easy to keep the nickel bright, but if
it is once allowed to get dull and shabby-
looking, it will take some time and
trouble to restore it to its original
brightness.

— Cleaning Fancy Shoes. —

Shoes with white leather tops and
black patent leather tips must be treated
first as white materials and cleaned with
benzoline before the liquid leather
whitener is applied. satin slippers or
shoes that are too dirty even to be cleaned
can be transformed by painting, water-
colour paints. Chose a paint a little
darker than the darkest spot on the
slipper, and you will be able to get a
uniform colour.

— White and Shiny Teeth —

Teeth cannot be kept white and shiny with an old water-soaked toothbrush, nor one which is used constantly. Have two brushes, and when one has been used for a couple of days, wash it in carbolic water and lay in the air and sun for two days. Carbolic water is made by putting two drops of carbolic acid in a pint of boiling water. When the brush becomes discoloured on the back throw it away.

— Digestibility of Cucumber. —

Many people are under the impression that cucumber is very indigestible, and when they eat it they do so under a protest and with apprehensions of possibly dire consequences. How this delusion can have arisen it is difficult to say, unless it be that the cucumber is often eaten with salmon and other indigestible things. It is not the cucumber, however, but the salmon that sits so heavily on our stomach's throne. Cucumber, in fact, is very digestible when eaten properly. It is excellent stewed and served with cutlets or other meat.

— Why Have Flabby Throats? —

The flabby throat that is such a give away to the woman who has passed her first youth, whether she wants people to know it or not, can be overcome by systematic exercise. The muscles of the neck get soft from the lack of use, as do all other muscles of the body, but will respond to treatment rather more quickly than some of the others. There is nothing better to restore this firmness than to practice the rotary motion of the head many times a day. This should not be done jerkily, but with even movements, letting the head fall as far to the front and sides as possible. If done rapidly or too continuously at first, there will be a sense of dizziness which is most annoying.

— Women with Narrow Shoulders. —

If your shoulders are narrow in proportion to the rest of your body, then

wear a broad, square-cut evening waist. If the arms permit, wear the sleeves well off the shoulders, but remember that no anatomical study must indulge in this style. On the contrary a plump arm may alone adopt this fashion. A square-cut evening dress apparently increases the width of the shoulders and broadens the chest.

Often a single string of pearls, turquoise, or coral bands resting in the right place will conceal with shadow the effects of bones, whereas a velvet band drawn tightly around the throat will serve only to accentuate the protruding clavicle or spine.

— To Cook Spinach. —

Pick the stalk from every leaf, when all are picked put them into a large tub of water. Wash well—spinach is usually so gritty that it requires more washing than any other vegetable; give it three or four waters. When the water is quite clear, take a large saucepan, quite empty, take a handful of spinach from the water, give it a shake, and put it into the empty saucepan. When all the spinach is served in this way put on top of the spinach a heaped teaspoonful of salt and a piece of soda the size of a thimble; set the saucepan over the fire with the lid closed; in a minute or two take a spoon and stir down the spinach; let it boil quickly seven or eight minutes, turn it into a colander, with a small plate press out the water, chop it, when as dry as possible; melt a little butter or cream in a saucepan, stir in the spinach with a little pepper and salt. Make it quite hot and serve with poached or fried eggs on the top.

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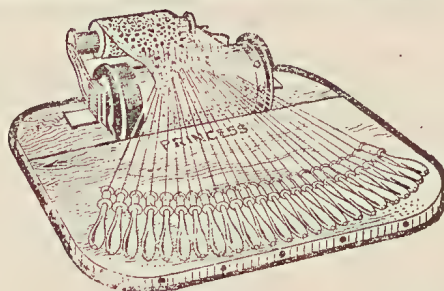
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CONTAINS—

Illustrations—

Streptocarpus, New Hybrid
South Corner of Dr. Poole's Residence, showing Gladioli and Rose Trellis dividing Garden
Fuchsia Phenomenal
Hydrangea
Case Mill, Wirrabarra Forest, with Stack of over One Thousand Apple Export Cases (Remarkable Pine) ready for Deilvery
View in Plantation of Remarkable Pine (*Pinus insignis*), Bundaleer Forest, 18 years' growth
American Ash (25 years old), Wirrabarra Forest (Summer view)
'King' Tree, Wirrabarra Forest, 120 feet in Height (distant view)

ANSWERS TO CORRESPONDENTS

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Description of Flowers—
The Fuchsia
Hydrangeas, and How to Grow Them
Gladioli with Curved Stems
Arches in Gardens
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The Vegetable Garden—

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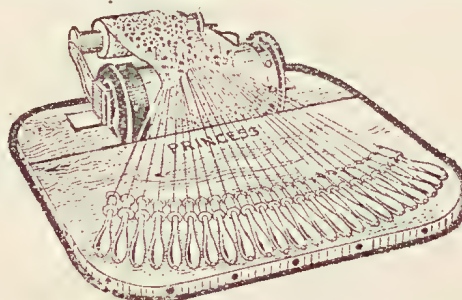
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Questions and Answers.

QUERIES.—Readers are invited to send us queries on any matters on which they want information. No charge is made for the insertion of questions, but the following conditions should be borne in mind, 1. One question only should be written on one sheet of paper. 2. One side only of the paper should be written upon. 3. Querists must forward their names and addresses (not necessary for publication).

ANSWERS TO QUERIES.—The queries sent us will be answered by men who know the subjects, but at the same time we shall be glad to receive answers to any published from readers who can give the information asked for. Our aim is to get our readers to help one another, and no one is better able to help a small gardener than another owner of a small garden who has gained experience in dealing with the many difficulties that have to be faced.

HEAVY CLAY SOIL.

O.M., Grenfell-street.—The coal ashes will do admirably for improving the texture of a heavy clay soil. This is, indeed, the best use to which, used alone, they can be put. The manurial value is very slight almost nil, but their mechanical effect in such soils is useful.

HYACINTHS FROM SEED.

'Beginner,' Wayville.—Hyacinths can be raised from seeds. All new varieties are obtained in this way.

* * * * *

CUTTINGS OF FRUIT TREES.

'Dan,' Freeling.—The best time to plant cuttings of fruit trees of all kinds is as soon as the leaves are falling—about in the autumn.

* * * * *

'MAIDEN' ROSES.

'Amateur,' Goodwood.—Roses are called maidens one year from the buds or graft. The same term is applied to fruit trees when one year grafted. You will do right in pruning as you propose.

* * * * *

STAKING PEAS.

F.M., Bowden.—The proper method of putting sticks to Peas is to slope them at an angle of 30 degrees or so, and let the sticks of the two sides of the row cross each other in a diagonal form. The Peas are then not so liable to grow or fall through the sticks. The sticks at the top should not be crowded into each other, as this reduces the space for the peas.

* * * * *

INCREASING PANSIES.

'Pansy,' Norwood.—If you wish to increase any particular variety of Pansy, the way to do so is to strike cuttings. Pansies come fairly true from seed, but seedlings cannot be relied upon. The best plan is to sacrifice the bloom for the year on any kinds that it is desired to perpetuate, pinching the bloom buds off as fast as they appear. Feed well with dressings of leaf mould pricked in among the roots; peg the first shoots down so as to leave the crown of the plant exposed; fresh, healthy shoots will rise from that, and a few of these should be taken off when they have made three or four pairs of leaves and planted in light soil, sand and leaf-mould under a hand-glass, and kept moist and shaded. The pegged-down stems will produce shoots, which may be treated in the same way.

SAMPLE OF SOIL.

'Constant Reader,' Bowden.—Certainly poor, but we cannot undertake to make analyses of soils, and it would be impossible to give you the full particulars that you ask as to its capabilities without doing something of the kind. However, there can be no doubt that the best manure you can use is that made in a farmyard or stable. This will supply food and also humus, in which the soil appears deficient. If you can get some good loam to incorporate with it, do so. Grow in the shaded part of your garden such things as Primroses, Polyanthus, spring bulbs, and Ferns. You need anticipate no difficulty in growing annuals and most of the common garden plants if you enrich the soil slightly.

* * * * *

FOWLS WITH DISTENDED CROPS.

'Constant Reader' Belair. writes:— I shall be glad if you will tell me, through the medium of The 'Australian Gardener,' whether fowls suffer from water in the crop, and, if so what is the cause. I have a pullet now with an enormous-looking crop, which seems to hang towards one side, and feels like an india-rubber bottle three parts full of water. I have been told that it is water in the crop, and that there is no remedy. Before killing it, I shall be glad to know if there is any treatment I can adopt. I may add that it has been removed from the other fowls, and given very little food. It just stands about the run all huddled up.

Distended crops are sometimes due to obstructions, or to excessive feeding. These cases are termed 'crop bound' and the remedy is to try gentle kneading of the crop with the fingers, a teaspoonful of water or salad-oil being poured down the throat. This, repeated at intervals, is often effectual, but when it fails the opening of the crop and the removal of the contents are tried. This is troublesome to the inexperienced, though the practised hand may make little of it. But we do not think your case is one of the binding of the crop. It reads more like a case of crop dropsy, which has a deeper cause. Treatment may be attempted if the bird is valuable; it consists of

the use of purgatives, followed by doses of iodide of potassium or iron and copaiaba; food should for a time consist of bread soaked in brandy and milk, given frequently in small quantities. But it is not worth while going to all this trouble for an ordinary fowl, and your friends who say there is no remedy are practically right. Indeed, the advice is good if applied to most ailing fowls.

EDITORIAL.

THE extraordinary weather that prevailed during the month seems to have upset the calculations of most producers. Nothing is so commonplace as the weather, because everybody is more or less affected by it. Producers particularly have to take it as it comes, and plan out their work accordingly from day to day. Farmers are praying for the sunshine to ripen their crops quickly. The cold weather is a good condition to develop the grain, and therein they find satisfaction, provided the later conditions will enable them to reap it. If the grain develops freely and large, and a sudden burst of heat follows, there is the risk of the sudden ripening shaking the grain out during the process of ripening. But there is always something to combat the producer in his efforts to win treasure from the soil, and no doubt the grain producer will work the business through.

Likewise with the market-gardener and the orchardist. The latter is rubbing his hands gleefully at the present moment as he walk around his trees and sees the fruit setting and developing well into a prolific harvest of apples for export. But he has not got his fruit into the cases yet, and while he may smile at the prospect, there is a long and treacherous road to travel with the weather and a thousand and one other conditions that may mean loss at every turn. It is, however, no use being pessimistic, and up to the present things are looking well for the orchardist. His fruit is doing well, and if he has been careful regarding the final developments of his crop the risks are worth taking that he will do well out of it.

A very striking feature of the coming harvest will be the returns from comparatively new country. It would be interesting to keep a separate record of the returns from the country that has been opened during, say, the last two years, particularly in regard to the land on the River Murray, and in what has been so long and stupidly known as the Ninety Mile Desert. Land on the Murray has reached a comparatively phenomenal figure in the purchase price. Not that there should really be anything peculiar in that, because it has been prophesied years and years ago that some day the Murray lands would be developed, and the price consequently reach a high figure in market value. However, prophecies have been neglected for years, and only just recently have the people with surplus cash and an interest in agricultural pursuits turned their attention to the Murray lands with an idea of developing them. Now it is reported that river frontages are held at a very high figure. But the figure is only high in a comparative sense, because of the cheapness of the original price, which was next to nothing at a rental value to the Crown. It is common knowledge that around the Loxton country the new farmers there are reaping 15 bushels of wheat to the acre on virgin soil that has really only just been burnt and scarified over. Such a process of farming is ridiculous, but it brings in the money, and those who get it can afford to smile at the old fashioned ideas of farming such as we see in the Lower North. The best test of a farm is the actual cash produced, and if a farmer or a Murray scrubber can tear down 500 acres of scrub, run a fire through it, rake it over with a scarifier or a disc cultivator, sow the seed in a drill, and reap a crop of 15 bushels to the acre he can easily afford to smile at the critic who calls him a Murray scrubber. So it is that hundreds and perhaps thousands of acres have during the year been put into crop all across the Murray Flats, known as the Ninety Mile desert. It would be extremely interesting to watch the record as a new development in agriculture.

We have no doubt that the results will show that the game of speculative farming in the first stages of working the land will pay handsomely. What matter if the business is a little rough and ready, money has to be made at the beginning of the business and the finer arrangements of old school fallowing and so on will work in later.

We wish the producers all success, and now take the opportunity, as it will not occur before the next publication, of wishing the producers of wealth from the land a very

Happy Christmas,

which they so richly deserve.

Gladiolus with Curved Stems.

This interesting and useful novelty was originated by Gobreuder Neubronner & Co., Neu Ulm, Germany. Gladioli with irregular stems having been found among the giant Gladioli some years ago these plants were set apart and used for cross fertilization, producing a whole assortment of colored Gladioli with curved stems. As every florist making up floral pieces knows how difficult it is to arrange the Gladioli, with their stiff stems, gracefully in a vase, these novelties will be welcomed as furnishing the desired grace of outline and grouping, for the stems will droop naturally over the rims of vases.

—'Bindekunst.'

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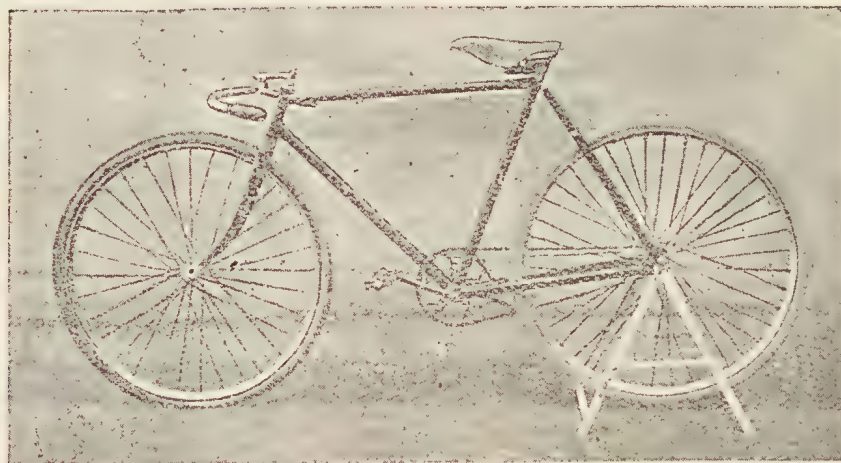
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The Flower Garden.

Notes for the Month.

Heat, mulching, and watering are the principal elements with which the gardener has to deal during this month. Mulching the surface of the garden plots with stable manure, or anything else that will protect from the direct rays of the sun, will be found an astonishing economy in the water bill. Not only in money, but in time and labor. The plots should be thoroughly watered once or twice a week, and the next need be only a little sprinkling to freshen up the plant. To wash their faces, as it were, after the scorching heat and particles of dust.

— Chrysanthemums. —

Chrysanthemums have been growing apace up to now, when they should be pinched back and cut down to six inches. Some growers advocate reducing the

plants two or three inches of the strongest shoots. The after treatment will depend upon the kind of plants required. If for show purposes one stem will carry the one bloom required. This practice is all right for show fanciers whose aim is at size of bloom. But the cottage gardener likes to see a plant worthy of the name, and should leave enough of it when cutting to make a decent show of blooms.

— Petunias. —

Petunias may be planted out, choosing a cool day, and, if possible, catching a shower of rain. These delightful flowers should be grown in the open beds more than they are at present. Few flowers command better attention, as they have an elegance of their own that distinguishes them at once when in bloom, and they last well, too. For pot plants they are most excellent. In a four or five-

inch pot plant half-a-dozen close round the edge. The double varieties are really superb blooms, and when well grown the single flowers are finely veined and colored.

— Marigolds and Zinnias. —

If your garden has to grow by itself, without any attention whatever, put in some French Marigolds, double and single. They bloom profusely, good colorings, and will grow anywhere and anyhow, and in the driest summer. So will Zinnias, though with a little attention they make better blooms. The hotter the sun the more they seem to smile at other flowers that wilt and wither under the trying summer conditions.

— Cannas. —

Chief among the fine bloomers during this month and later are Cannas. The fashion that set in for these handsome foliaged and rich flowering plants seems to have been rather short lived. Just why this is so cannot very well be explained. Nothing in luxuriance of foliage can excel them, and the flowers are entirely distinct in form and charmingly colored. One secret of maintaining their beauty for large bedding is not to allow them to grow to big. They look to unwieldy unless alongside a large pond. In the average garden bed they should not be encouraged to grow more than two or three feet, when they are handsome enough, and the flowering is better. It is only during recent years that they have been made to flower at all. The plant is remarkable in this respect, inasmuch as the development of the flowers has not affected the tropical appearance and beauty of the foliage. They can be planted this month in a richly manured bed, and plentifully watered. The name, Indian Shot, refers to the seed, refers to the seed, which is very hard, and the natives used them in warfare.

— Portulacas. —

Now, we wonder if it is possible to advance our readers a step in the cultivation of Portulacas. If you have none in your garden, throw in a few seeds now. They will most likely grow, and if



South Corner of Dr. Poole's Residence, showing Gladioli and Rose Trellis dividing Garden.

they do, and you nurse them along a little with watering occasionally, some hot summer morning, when taking a walk round the garden not feeling too fresh after the heat, and you will be cheered to gladness by the bright colors of those Portulacas. We know of no flower that opens its heart so wide to the rays of heat. The double ones are like miniature double Roses, and the colors are so pure and good.

— Roses. —

The reception at the courts of the queen of flowers is now just about over, although some of the roses can be kept blooming by constantly picking off the old blooms and cutting them back to outside buds. If the plants are suffering from mildew it is a sign of weakness. Sulphurise them to clean the leaves, and apply some liquid manure to help the plant, by its own efforts, to throw off the disease.

From many parts of the state reports have been received of the havoc amongst the roses by the presence of countless myriads of thrips. And not only have roses been attacked by this terrible pest, but in some gardens carnations and some

bulbous plants have also been ruined for the season by the presence of these insidious and minute insects.

Our rosegrowers, and they are a numerous body, do not know how to ward off thrips entirely; their ravages may be lessened by hosing with clear water, but there is no absolute preventive known. If not already done, gather immediately all the diseased buds and blooms and burn them. Cut back the shoots, say 6 or 9 in., according to the growth of the plant, feed the plants well, and hope for a clean crop of blooms in the autumn.

— Phlox. —

We are trying hard to persuade gardeners, the amateur cottager, to persevere in the cultivation of Phloxes. In favored positions of shelter it is not too late now to set out vigorous plants. They look so cheerful. Their tinting of colors and their bright, happy-looking eyes never fail to please and cheer up a disconsolate gardener. They make a very pretty table and inside decorations by a set of artistic fingers. For effective show in the border they should be massed, when they will grow to about six inches and form a beautiful

setting of color. But for finer sprays of bloom they require room for each plant, say, 6 to 10 inches apart.

— Verbenas. —

Verbenas are old-time flowers that we have been accustomed to see carefully cherished by grandmothers, but now they are, like many other good things, out of fashion. But, walking round an old-time and old-fashion wild garden the other day where many good things grew according to their own sweet will, we suddenly happened upon some lovely Foxhunters. Their bright white eyes and clear red petals were so pretty that we lingered with the wish that they would come into fashion again. They may be planted out now from layers, and will bloom very shortly.

— Everlastings. —

Do not forget the Everlastings (Helichrysum) for your summer borders. They grow well, and if picked just before being full blown, will last until next season in vases. If tired of looking at them, refresh their faded beauty with a little light foliage of Fern or Asparagus.

— Godetias. —

If the seeds of Godetias have not been sown, procure a few plants.



Fuchsia Phenomenal.

Description of Flowers.

THE FUCHSIA.

The Fuchsia is such a well-known florist's flower as scarcely to need description. Whilst in the two great divisions of plants, threes or fives, or their multiples, are customary, the Fuchsia favours the number four; it has 4 sepals 4 petals 8 stamens, and a four-celled berry. As the flower is pendant and the corolla partly hidden from above it has found it advantageous to grow a coloured calyx in order to attract insects for pollination. The Fuchsia was discovered 200 years ago by a Monk, Father Plumier who named it after a botanist, Fuchs,

born another 200 years earlier. The native habit is Central and Southern America, there are about 50 species, of which the principal in cultivation are Globosa, Corymbiflora, Fulgens, (with flowers and tuberous roots), Procumbens, and Gracilis. The natural order to which the Fuchsia belongs is Onagraceae, so called because in some species the leaves are like the ears of the Onager or Wild Ass? Other species found in our gardens are Caura, Godrtia, Clarkia, and the Evening Primrose. The berries of the Fuchsia are edible, and so are the roots of the Evening Primrose, and the seeds of the Water Chestnut, of the same order.

The Fuchsia readily lends itself to crossing. Supposing a fine shaped flower with tolerable pure white tube, but deficient in a good corolla of the right form and colour, then take pollen of a variety that has a good corolla, and apply it to the stigma of the one with a good tube and sepals, and save the seed. A glance down a florist's catalogue will show the numerous varieties of colour obtained; the sepals being white, crimson, scarlet, violet, &c., and the petals white, pink, purple, blue, &c. in various combinations. These varieties are obtained by crossing as indicated and growing the plants from seed.

Some varieties, too, are grown for the beauty of their leaves, such as Sunray and Meteor. The propagation is easy either from seeds, or from cuttings about one inch long of young shoots taken off close to the old wood. Even in the hills where frost is not unusual, the plants will survive the winter if not allowed to get sodden.

It can be successfully and easily grown either in the open beds, the bush house, or under glass. The plant is mostly favoured for pot culture, because of the gracefulness and beauty of the blooms and the elegance of its form as a plant when carefully shaped during its younger stages of growth.

The most suitable compost is one part sharp sand, one part well decayed cow-manure, and two parts rich fibrous loam. Although the plant is a rich feeder, only occasional supplies of liquid manure should be given, and then great care must be taken not to put it on too strong. To make the young plants bushy the shoots should be stopped off when the plant has grown about 6 or 8 inches.

In pot culture the plants require to be replaced with young ones about every third year.

In the open they are very vigorous growers when properly tended, and their special delight is an eastern aspect, well sheltered from the hot winds. Here they should be well mulched with rotted manure, and growers will find them thirsty plants during dry weather.

Many growers of Fuchsias not for show purposes will keep the same plants in

large pots, or in open beds in favoured spots for years. As a rule under such circumstances the old plants become gaunt and straggley, but by judicious pruning, and afterwards stopping, in the autumn the old plants will hold their own against others with a fair show of blooms indeed very fine flowers are thrown. The pyramid shape is the correct form to be worked for, and to gain this the tops should be nipped off to force out the lower branches. One of the upper shoots should be removed as soon as the lower ones have pushed a few inches, and the other tied to a stick, to be again stopped when it has advanced about a foot.

The Fuchsia is another plant which has been neglected in the matter of not being grown nearly so largely as it deserves to be.

We have no hesitation in recommending the single varieties for outdoor cultivation, because they are hardier and freer flowering than the double, and in nearly every instance they make the better plant of the two. As a matter of fact, it is requisite that the double varieties should solely be cultivated in nicely sheltered situations.

From the single varieties we can commend Mrs. Marshall. Its tube and sepals of the flower are white, the corolla is pink, and without a doubt is one of the very finest varieties for outdoor cultivation. Another very fine variety is the Rose of Castille, which has white sepals, with violet corolla. White Jubilee is a variety possessing an enormously large flower, with rich red sepals and reflexed corolla. It is altogether a grand flower but not such a free flowerer as either of the other two varieties before mentioned. The Earl Beauchfield is a wonderfully beautiful and thoroughly distinct fuchsia having rosy carmine tube and sepals with a deep carmine corolla. Mrs Rundle is another very fine fuchsia, after the style of the Earl Beauchfield. It has flesh coloured sepals and an orange-scarlet corolla. A variegated variety of the fuchsia that really ought to be grown in the flower garden, not wholly for its flowers, but for its foliage, is *Gracillia variegata*. The flower of this fuchsia is small when compared with some of the

other varieties, but it has beautifully variegated leaves, the variegation being white, and round the edge of the leaf. Of the double varieties we would recommend Avalanche which has crimson tube sepals with a purple corolla. It is possessed of a very distinct foliage of a paleish green colour. Frau Emma Tophia is very pretty and distinct variety, having tube and sepals of a rosy coral colour with a clear rosy blush corolla, the flower is large and extremely free flowering for a double. Madame Jules Christian is one of our best double white fuchsias. The sepals are short, reflexed, and of a nice crimson colour, whilst the corolla is a pure snow-white. Miss Lucy Vidler has rich crimson sepals, with a bright violet mauve corolla. Molesworth is one of our largest double flowering fuchsias, having nicely reflexed sepals of a bright carmine colour, with a pure white corolla. Phenomenal (illustrated) is a well-known variety, having a short tube reflexed crimson sepals, the corolla is azure violet flaked with red.

Hydrangeas : How to Grow Them

In Spring and early Summer there is nothing more striking than large numbers of Hydrangeas in small pots, say about 6 or 7 inches in diameter. The plants, grown to a single stem, 6 or 8 inches high, are furnished with three or four pairs of healthy leaves, surmounted by a globular head 12 or 15 inches through, generally of the freshest and clearest bright-pink color, although a few are met with possessing the blue shade that is so much prized by some, and for producing which there are several different recipes, in the shape of soil more or less impregnated with iron filings, charcoal, or alum, or pure peat. Larger specimens may also be grown; bearing several heads of flower each, but for general decorative purposes the small plants with single heads are much the most to be preferred. In addition to the pleasing color, general attractive character, and long endurance of the flowers, the plants possess the advantage that during the time they are in bloom they

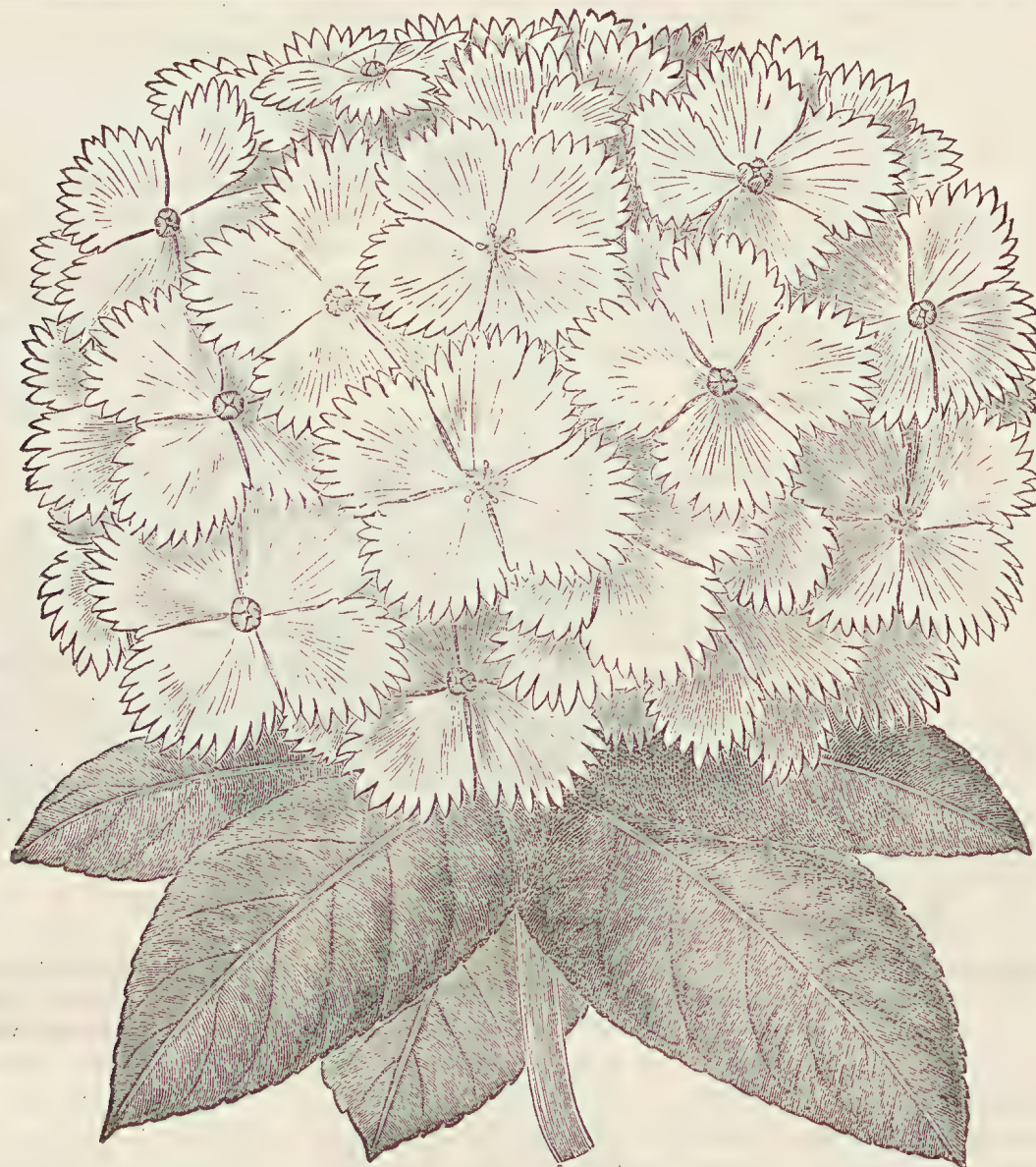
can be stood in places where there is comparatively little light, even under the shade of other plants, in positions that few, if any, other flowering subjects would bear without being so injured as to be useless afterwards.

— The Larger Variety. —

There is a larger variety of the common form, with the individual flowers of which the head is composed, as well as the head itself, much bigger than the older more generally known kind. This is the best to grow, differing in no way as to the treatment it requires in propagation, soil, and time of flowering.

— Cuttings. —

Cuttings will strike at any time of the year that they can be obtained in a half or three-parts ripened state, but to ensure the large heads on small plants such as above described, the best plan is to have a few plants grown out in the open, where they keep strong and short-jointed. These, according to the character of each season, will generally get sufficiently matured to be taken off in February, at which time the buds will be formed in the points, in which state they should be taken off at about the third joint below the bud and inserted either singly in small pots or several round the side of a 6-inch one. Place a few bits of crocks in the bottom of each, on these a little fibrous material, and dry or flaky rotten dung. They are in no way particular as to soil; but if it is preferred to have some of a blue shade and others the normal color, a portion may be struck and grown in sandy peat, and the others in loam, in both cases using it for the cuttings in something like a proportion of one-fourth sand to the loam or peat. The cuttings should be severed at a joint, and inserted firmly in the soil, the leaves, except those at the base, which must necessarily be removed, being retained. A slight hot-bed should be prepared, on which place an ordinary frame with glazed lights—this process is not, of course, absolutely necessary—in this plunge the pots, keeping them well moistened and shaded from the sun, but with the lights tilted day and night, so as to keep the tops cool. They will soon



Hydrangea.

strike, after which the shading must be dispensed with, and when they are well furnished with roots at once remove them to 6-inch pots, in which they may be allowed to flower. Keep them quite cool through the autumn—any pit, frame or house will answer. It is better not to subject them to frost; they will cast their leaves before winter, nothing remaining but the woody shoot with the bud at its extremity. But never allow the soil to become dry, or the roots will suffer.

— Producing Early Blooms. —

If so desired, a portion of the plants may be had in bloom early by putting them in a moderate heat about the end of June; they will soon com-

mence growing, making two or three pairs of leaves below the flowers. As soon as they begin growing freely those that are intended to come with pink flowers may be assisted once a week with moderately strong manure water, which will cause the production of much larger heads of bloom; but we have never been able to produce flowers of a decided blue color if manure-water was used. When it has been given to them, even when they were grown in all peat, or with alum or iron in the soil, they have become neither one thing nor the other, but a not very pleasing mixture of both.

— A Succession of Flowers. —

Such as are wanted later may be put in a little warmth, and some allowed to come on with the assistance of solar heat in an

ordinary greenhouse temperature. So managed, a succession of flowers can be kept up for six months.

After the blooms have become shabby the shoots that have borne them may be cut out at the bottom, as suckers are sure to spring that will make more compact plants; plunge them out-of-doors for the Summer, Winter out of reach of the frost, and in the Spring, just as they show signs of beginning to grow, head them right down to the bottom. They will quickly throw up shoots that will produce large heads of bloom, on much shorter growth than if borne upon the old wood formed the preceding year. The writer has kept plants for three years in the same 6-inch pots they were first potted in, without either change or addition of soil, simply by using manure-water during the time they were growing. In the second and third year they produced from three to half-a-dozen fine heads.

Arches in Gardens.

An arch, or series of arches, when well furnished with representatives of the many beautiful climbing plants suitable for such a purpose, forms a charming feature in a garden; but at the same time they are often placed in a position where the surroundings are very inappropriate and much of their beauty is lost. When a quiet and sequestered walk leads from one especially interesting part of the garden to another, and that walk is spanned at intervals with bold wire arches clothed with such beautiful climbers as Honeysuckles, Clematis, climbing Roses, Jasmine, and similar subjects, a great charm is imparted to what might be a dull and uninteresting walk, for the beauty of the flowers is, in the case of many of these climbers, supplemented by their delicious fragrance. In immediate proximity to doorways or gateways in a garden such an arch will tend to relieve and partially veil the hard outlines of the entrance and form a welcome addition to floral display; while, on the other hand, if placed, as is often done, in an isolated position, without any particular reasons for its being there, an arch, even if well clothed, is not to be commended.

Color of Flowers Influenced by the Moon.

According to the latest investigations the color of flowers is influenced to a great extent by the moon, in a way hitherto unknown. Tea Roses, which are very sensitive, as is well known, were made the subject of experiment. While the buds were unfolding, part of the plants were kept entirely in the dark, others were subjected to the full sunlight but were kept entirely in the dark at night, and a third batch was kept in semi-darkness during the day, but exposed to the full moonlight at night. The flowers of these last named developed very delicate shades of color, which far surpassed the usual high colors in loveliness. The flowers of the plants kept entirely in the dark were not colored at all.

— 'Der Handeisgaertner.

In Persia the women of fashion ornament their faces by painting upon them figures of insects and small animals.

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The Kitchen Garden.

—:o:—

Operations for the Month.

Seeds of any of the following may be sown during this month:—

Beans (French and Runner)

Beet (Silver)

Celery (Red and White)

Cress

Cucumbers

Mustard

Radish

Rape

Spinach (New Zealand and Round)

And for Early Planting:—

Cabbage

Cauliflower

— Hoeing and Weeding. —

Young growing crops should be hoed and kept free from weeds. If this is not attended to they will soon be smothered, and time, seed, and labor wasted.

— Sowing. —

One is reluctant to sow seeds of any kind in hot, dry weather, but as one does not know when the next good downpour will occur it will be necessary to sow some kinds of seeds in order to keep up a succession. The seed beds will need attention in watering and, perhaps, in shading, and if a little fine rotted stable manure be sprinkled over the beds good will result.

— Transplanting. —

Advantage should be taken of showery weather to plant out from previous sowings cabbage, celery, &c. Carefully examine young cabbage plants for signs of club root, black leg, and other fungus diseases. Any so affected should be burned at once.

— Watering and Mulching. —

Indiscriminate watering is not recommended, for when once the hose or watering can is started their continuance is necessary, unless rain falls. Surface watering helps the formation of surface roots, and these quickly suffer under the

influence of hot suns, unless the watering is continued or a mulch is applied. The value of mulching growing crops, especially lettuces, peas, French beans, and all cucurbitaceous crops, cannot be overestimated. All salad plants need an abundance of moisture, or the produce will not be tender and succulent. But do not apply water little and often; give a good soaking when you do water, and apply in the evening if possible.

— The Tomatoes. —

Lateral shoots should be pinched from tomato plants, and each plant securely staked. Should any insect or fungus then attack the plants they can easily be sprayed. Early tomatoes are almost invariably attacked by the larvæ of the tomato moth (*Heliothis*). The plants should be sprayed on the first appearance of the grub with Paris green, using one ounce of Paris green to 10 gallons of water. One pound of new lump lime must be slaked, and a quantity of water (about two gallons) poured over it. It should be thoroughly mixed, and strained into the spray pump or other vessel making up to 10 gallons. The Paris green should be mixed in a saucer or such vessel, in a small quantity of lime water, and when thoroughly mixed, added to the 10 gallons of lime water. This should be thoroughly agitated while being applied. Do not use if the fruit is ripening.

How to Test the Vitality of Garden Seeds.

The vitality of seeds diminishes rapidly with age, and it is, therefore, well to determine their vitality before sowing. A cheap and convenient way of doing so is the following:—Take two earthenware plates of the same size; cut out two circular layers of flannel, somewhat smaller than the plates. Between the two layers of flannel place 100 seeds of the variety to be tested. Moisten the flannel with all the water it will absorb. The two layers of flannel are placed in one plate and covered with the other, and set in a warm place. If the flannel is

thin, several pieces should be used, in order to absorb sufficient water. Other kinds of absorbent cloth or blotting-paper can be used, but thick flannel is more satisfactory. Damp sand may also be used as a seed bed with success. The dishes should be kept in a room which is warm at night. Keep the flannel constantly moist. Some seeds will commence to germinate by the third day. Examine the seeds each day, and remove those which have germinated. Two weeks will suffice for the test. The results obtained may be considered as representing the per cent. of vitality under favorable conditions. The per cent. germinating in the ground is likely to be less. Grass seeds require as much as three weeks, and seeds of some trees a still longer time. Beet balls contain from three to seven seeds. With very small seeds it may be necessary to provide for the circulation of the air by placing small pieces of wood between the layers of cloth among the seeds. With most varieties of garden plants the majority of seeds should germinate within a few days after the first sprout appears. If the period of germination extends over a longer period, it shows that the vitality of the seed is low. Seeds of the carrot family and some melon seeds may not show as high results in the germinating dishes as they do in the ground.

The following list of common seeds, with the average number of years that they will retain their vitality, is culled from Prof. Bailey's Horticulturists' Rule Book:—

Bean, 3 years
Beet, 6 years
Cabbage, 5 years
Carrot, 5 years
Celery, 8 years
Cucumber, 10 years
Maize, 2 years
Lettuce, 5 years
Rock Melon, 5 years
Onion, 2 years
Parsnip, 2 years
Pea, 2 years
Pumpkin, 4 years
Radish, 5 years
Squash, 6 years
Tomato, 4 years
Turnip, 5 years
Water Melon, 6 years.

Growing Radishes.

There is no advantage in securing great quantities of large sized Radishes. A small and constant supply of crisp, delicately-flavored bulbs should be the only aim. When making up beds of manure and leaves for forcing Potatoes, Carrots, etc., in July and August sow a few Radishes. When the Potatoes, for example, are planted in rows 15 inches apart, a row of Radishes may be sown between, and they will be ready for use and cleared off before the Potato crop in any way interferes with them. In Carrot frames the same thing may be done, and sometimes a Radish seed is dropped in here and there among the Carrots, as they will push up and be cleared off before the Carrots require much top room. Thus young spring Radishes are obtained without any special outlay or extra attention. Many, however, who try to grow early Radishes in this way make mistakes. One of these is sowing the seed too thickly. Under such circumstances, when the plants come up they are a mat at top and bottom, and when this is the case useful roots are never formed. Thinning out some of the plants as soon as they can be handled is one way of avoiding this, but it is a wasteful way; the better plan is to sow thinly. One seed every six inches or so will give a much finer crop and better results altogether than close sowing. Many, doubtless, wonder why their Radishes do not all bulb, but allowing them to grow too close together is, as a rule, the cause of this. Many are most particular, too, in getting their seeds in and the crop brought to maturity; but after the usable part of it has been gathered neglect follows, and where Radishes have been raised in a Potato or Carrot bed, it is no uncommon thing to see worthless Radish-tops overshadowing everything by the time the other crops should have been at their best. Cultivators should always be particular in clearing out all the Radishes as soon as they become too old for use, and any which do not bulb early may be thrown away altogether.

In making up a special bed for early Radishes, a very shallow bed of fermenting material is sufficient; about one foot in depth is enough, and six inches of soil should be put on the top of this. The seed should be sown broadcast, very thin, and it should not be covered more than half an inch deep.

Select spots need not be chosen for Radishes in this State, and they can be sown during every month of the year. They will do almost anywhere, their only requirements being a firm, rich, cool soil. Without this, especially in summer, the roots will become hot and stringy before they are well developed, and the period of their usefulness will be very short.

In general culture some may prefer having the seed in rows; others may sow broadcast, and good Radishes may be had both ways.

At no time should the seed be put more than half an inch below the surface, and the soil should always be trodden firmly over it, as this induces the plants to bulb quicker and better than when in loose material.

Dates of sowing and quantities to put in at each time cannot be given to suit all; every cultivator must be guided by his own requirements in this respect.

Cucumbers Turning Yellow.

This is sometimes due to defective root action, brought on either by too heavy waterings or unsuitable soil. When leaf-soil or much dung is employed, the roots are apt to come into an unhealthy state. It is best to use good loam, lightening it, if heavy, with a little leaf-soil, and apply the manure as a top dressing when the plants come into full growth, and plenty of active fibres are running near the surface. Cucumbers should never be heavily watered; the soil should be maintained in a moist condition. Do not allow it to become quite dry, but never pour in any great quantity of water at a time, as this causes a temporary cessation of root-activity, and checks growth. Deformed fruit are often produced in this way.

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Cultivation of the Potato.

By the Editor of the 'Queensland Agricultural Journal.'

(Continued from last Issue.)

— The Least Expensive Way. —

This laying out is one way of sprouting potatoes which should be followed by every farmer who attempts potato culture. It is the least expensive way of treating them, and will always pay handsomely, as the first growth and subsequent results from prepared tubers are infinitely better than when they are taken straight from the heap and planted, which very many are, unfortunately. But there is another way of sprouting which is still better. This is to get a number of wood trays from 2 in. to 3 in. deep, and of any width and length; from 3 ft. to 4 ft. long, and 2 ft. to 3 ft. wide, are handy sizes. A little fine soil is put in the bottom, and the tubers are stood up on end as close as they can be packed in the trays. The ends with the eyes or buds on them are kept up, and the trays are placed in light, airy sheds, or such like places. Forcing them into growth is not advisable, the object being to get hardy little shoots on the tubers, which will not be checked when they come in contact with the soil in planting. The growths should not be more than 1 inch long when planted, and $\frac{1}{2}$ inch is quite as useful a length. If trays cannot be provided for all of them, there is no reason why the whole should not be laid out in sheds, or the early sorts may be sprouted in trays first, planted, and the trays again filled with late kinds. The right time to put them in trays is before the growth begins. Sometimes there are blind tubers. When these are planted there is a blank, but in sprouting none but growing tubers should be planted. If it is seen that the growths are likely to exceed 1 inch in length before they can be planted, check them by admitting more air, but in doing this take care that a cold cutting wind does not reach them, and always be sure that they are protected from frost if that is

occurring. When the tubers are quite dormant it is often a long time before growth shows above ground. It might often be earlier without much chance of being injured by frost. All, too, desire their crops as early as possible if grown to meet early markets, and there is no better way of helping them on than the process of sprouting before planting, and having both tuber and growths in a sturdy, hardy condition when put in the soil. I have found this brings the crops in a fortnight or three weeks sooner at digging time than dealing with unsprouted tubers or those sprouted in the heaps, and the yield is also better from sprouted than unsprouted sets. Do not run away with the idea that there is a good deal of fiddling labour about it, and is not worth the bother, but look on it as a very important aid to successful culture and extra remunerative returns, and you will not be disappointed.

There can be no doubt that seed potatoes are weakened by the rubbing off of the shoots when they have sprouted badly, but that a good crop may be obtained from a second sprouting has often been proved. Potatoes have even been planted when every vestige of a sprout was rubbed off and not an unsprouted eye appeared, yet they sent up vigorous shoots.

— Flowering and Seeding. —

Under favorable conditions the potato plant flowers freely, and produces a green berry which contains the true seed of the plant. It is from these seeds that the different new kinds of potatoes are produced. I need not here go into the matter of the production of seedling potatoes, as what is intended here is merely instruction to young farmers who have had little or no experience previously in the art of successful potato-growing. The work of raising new varieties is expensive and tedious, and is only undertaken by certain growers (as I shall presently show when I come to the cross-fertilising of potatoes), who practically devote their lives to the business, sowing hundreds of thousands of seeds, to find sometimes only one new plant worth cultivating.

The potato plant does not produce seed so freely in this State as in colder climates, and it is, perhaps, as well that it does not flower heavily, since experiments on

The Effect of Flowering of Potatoes, made by a German scientist, some years ago, to ascertain whether blossoming was detrimental to the development of potato tubers, showed that the effort of the plant to provide for its reproduction by means of seeds seemed to result in a corresponding weakness in its root growth and in the size and numbers of the tubers. The experiments were carried out on a number of plots on similar soil, every condition being exactly the same. On one plot the plants were allowed to bloom as much as they liked, but the blooms of the plants in other plots were cut off at different times. The crop that had not been topped at all was the worst yield, and the best crop was the one that had been prevented from blooming by being topped at frequent intervals. Those that were topped at the latest stage of the plants' growth were not so satisfactory as in the case of the crop frequently topped off.

(To be Continued.)



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The Orchard.

Notes for the Month.

— Cherries, Apricots, and Peaches. —

The above fruit should be plentiful this month, and most of the cherries will find ready sale for dessert purposes; some will be converted into jam. Early peaches are valueless for jam-making but are excellent for dessert, and are good when stewed. Apricots, though suitable for dessert, and used largely for that purpose, find ready sale at the jam factories, where they are canned, pulped, or made into jam. In our drier and warmer districts the fruit is generally dried, and put upon the market in this shape—1 lb. of the dried product being equal to from 4½ to 7 lbs. of fresh fruit, according to the variety dried.

When used for this latter purpose the fruit should be allowed to ripen well before picking, but it must be handled before it is so ripe that it will mash up when handling. The best dried fruit is that made from the ripe fruit. In drying the operator must see that the fruit is kept clear of dust, as any dust falling on this or any newly-cut fruit will adhere to it and spoil it, therefore, whenever possible, use a lucerne paddock for drying, or, in any case, keep as far away as possible from dust and sand.

As soon as the fruit is quite tough, and has lost most of its moisture, it should be taken from the trays and put in calico bags, and securely tied in order to keep the moths out. When packing them for the market, see that they are graded and packed in neat boxes which have been lined with paper.

— Attention to Strawberries. —

Strawberry runners that appear on the fruiting plants should be removed, unless wanted for future planting, as soon as they appear. Barren strawberry plants are frequently found in our gardens, and as these are generally robust, producing plenty of runners, they are often perpetuated. Even professional gardeners do not always recognise the distinction between plants bearing staminate or perfect blossoms, which contain both male and female organs. The male or staminate blossoms can be told from the female or pistillate by the long stamens with yellow pollen standing in a row around the young berry, while yet in bloom; pistillate blooms do not contain this. It is always better to plant several kinds of strawberries, which flower about the same time, near each other, so that there may be better fertilisation of the flowers. If only those varieties which are imperfect, i.e., in which the blossoms contain no stamens in addition to the pistils, be planted the result is usually a failure.

— Irrigation. —

In districts where irrigation is practised it will be found necessary to water all trees, vines, lucerne, or any other crops this month, and be sure to work up the ground as soon as it is dry enough to allow the horses and cultivator on the land.

— Keep the Weeds Down. —

Horses and cultivators should have but little rest this month, as an orchard neglected for a few days will soon be covered with a coating of summer grass which will take many a hard day's work to eradicate, and couch grass spreads rapidly when left undisturbed. Where there are bad patches of couch grass these should be ploughed up and harrowed on a very hot day, as the roots soon die exposed to the sun.

— Codlin Moth. —

A strict watch must be kept over bandages on the pear, apple, and quince trees, and all fruit should be picked up and destroyed either by feeding it to the stock immediately or boiling or burning it; but not by burying it, as a few of our

careless growers have tried to do. It is to the interest of every grower to see that every grub is destroyed before it can fly.

— Care of Young Trees. —

Newly planted trees should be looked over, and all unnecessary and misplaced shoots rubbed off. The plant then puts all its strength into the shoots that are left, causing a much stronger growth.

— Attention to Vines. —

Thin out the superfluous shoots on vines, allowing just sufficient to remain to furnish next year's crop, and to act as a partial shade. Stop the fruit-bearing shoots at the second or third joint beyond each bunch. Thin out the bunches and the berries. Thus the ripening will be hastened, and better sized quality ensured. In the case of trellis and house covered vines, see that the wall is covered with useful wood for present and future use. Remove shoots that have a tendency to cross and overlap others. Towards the end of the month give the vines liquid manure or dressings of bonemeal, old mortar, and well rotted dung or spent cow manure as a mulch. Keep the soil around them clean, sweet, well aerated, and free from weeds.

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W. GILL,]

Case Mill, Wirrabarra Forest, with Stack of over One Thousand Apple Export Cases (Remarkable Pine) ready for Delivery.

[PHOTO.]

NOTES ON EUROPEAN NURSERIES.

After an absence of two months from the United States, which was spent in a business and observation tour of all the prominent nursery centres in England, Scotland, France, Belgium, and Holland, Mr. R. T. Brown, manager of the Cottage Gardens Co., Queens, L. I., returned to these shores on Wednesday, September 15, per S. S. Majestic of the White Star Line, which made one of her swiftest trips in recent years.

In speaking of his observations abroad, Mr. Brown states that the uniformly best kept-up nurseries he noticed were those at Boskoop Ho'land, but few of the foreign establishments are conducted on as large a scale as are to be found here. In this nursery centre no striking features were noted, beyond the fact that all the growers are restricted as to area, and that in re-

latively very small acreages of ground a suprisingly large amount of stock is grown for exportation. Nurseries at Boskoop are about all alike and grow about the same stocks; after you have seen one you have practically seen all. The principle stock grown is hybrid Rhododendrons for the American market; Ostawbiense varieties, Parsons' hybrids, and that class, also conifers in large quantities. The large flowering Clematis seen growing here was worth notice, it was in full flower and in all varieties, the pines are supported on large cane stakes, from 6 to 7 ft height, and make a very charming appearance.

At Oudenbosch, Holland, another nursery centre, the growers have higher ground than at Boskoop, therefore no canals. The soil here seems to be especially adapted for the growing of deciduous stock.

Speaking generally, Mr. Brown said that it appeared to him as if the nurseries on the other side were taking more interest

and care than ever in growing deciduous trees. The general rule now is for the first two or three years to use a stake to every tree. This system will result in assuring a large quantity of straight trunks. The trouble heretofore has been that after importation and growing on, many trees are unfit for sale owing to their developing a crooked stem. The growers now use a cane stake, substituting for this a heavier one when it is called for. This extra work adds somewhat to the cost of the stock, but it is well worth paying even 25 per cent. more in order to secure absolutely salable goods.

At Oudenbosch, and in his travels all over Continent and Great Britain, a scarcity was noticed in a number of varieties of best trees in import sizes.

In Belgium it was noticed that stock handled by the nurserymen for planting out was much younger than with us, planters of home grounds and estates being apparently satisfied to wait on the



W. GILL,]

View in Plantation of Remarkable Pine (*Pinus insignis*), Bundaleer Forest, 18 years' growth.

[PHOTO

developing growths. None of the nurserymen visited carried any quantity of large specimen trees as here, in fact, they do not care to handle trees over 2 to 2½ in diameter. Throughout all his travels Mr Brown found no particular demand for large trees.

The traveler was much impressed with the system adopted by Croux et Fils at Chatenay, France, some ten miles out of Paris. The general layout of the nurseries excited his admiration, as did also the large variety of the fine specimen conifers. These nurseries carry a large acreage of dwarf fruit trees of all kinds, having probably the finest and most extensive collection in Europe. They have started a new nursery, at some distance from the old one, of 100 acres, 50 acres of which have been set out in dwarf and trained fruits, many of which are grown on the espalier system. Last year the Cottage Gardens Co. made large importations of dwarf apples from England

and of dwarf pears from Croux et Fils, and this year they are also importing extensively. More particularly for private places, one great factor in favour of these dwarf varieties in this country is that they are far easier to spray and thus to keep clear from scale. Questioned as to whether scale was not more prone to attack dwarf fruits than the standards. Mr Brown replied in the negative, stating it was simply a question of constitution, the scale naturally attacking the weaker plants of either kind. His endeavour was to make importations of dwarf varieties which have been found to do well in America grown as standards and the Company is also trying the best European sorts. Mr Brown states that the demand for dwarf fruits is increasing rapidly in the United States, this class of trees being greatly in favour among those who have had experience with them, and that, when properly handled, they give immense yields.

As an instance in point, Mr Brown spoke of the excellent crops of dwarf fruit yielded by the plantations of Paul Cravath, Esq., at Locust Valley, L. L., where he had seen even larger crops of fruit than on the Continent.

As to dwarf pears, the French varieties lead the world, and the growers there, having devoted their attention to this fruit for years, have many varieties which are superior to our best in America, and it has been found that some of these have done very well here, being also absolutely as hardy as the standards. Another point in favour of the dwarf fruit is their handiness with which the trees may be gotten at for pruning and the relatively small space of ground they occupy, making them especially desirable for limited areas on small country places.

The concern of Barbier et Cie, Orleans France, with a nursery of 250 acres, grow all their seedlings and cuttings in symmetrically laid out beds, and show acres



W. GILL,] American Ash (25 years old), Wirrabarra [PHOTO.
Forest (Summer View).

upon acres in perfect condition, both evergreens and deciduous. This firm exports all over the world and makes a point of keeping no stock over three or four years old.

At Angers, in the west of France, another nursery centre, Mr Brown found that stock was not handled as well as near Paris, but that certain varieties of conifers were here found very well done, the climate being especially favourable to these.

In Great Britain Mr. Brown's time was

limited, and so many rainy days were encountered that it interfered considerably with his visits. He managed, however, to see all the prominent nurseries at Windlesham and Bagshot, such as Fromow & Sons (at the former place) and that of Chas. Slocock at Woking. In these nurseries he observed fine collections of Rhododendrons. The English growers are becoming more interested in this culture and are working up large quantities of varieties suitable for the American trade; this means that, in a few

years, varieties which are scarce now will become more available and cheaper.

Throughout all the nurseries of Europe Mr Brown noticed that spraying of trees was almost unknown and uncalled for, and that there was very little suffering from insect foes, but that there was trouble encountered at times from mildew. He found that in England, particularly, the growers were anxious to cater to the American trade and were working up large quantities of stock, especially of conifers, that will be suitable thereto, and he thinks they are wise in doing this.

A nursery establishment that struck Mr. Brown most favourably was that of Fisher, Son & Sibrey, one of the largest and oldest in England, located near Sheffield. Here, especially, the Hollies are particularly fine and are to be found in every variety, the specimen Hollies affording a magnificent display. The grounds are laid out in well arranged walks and offer some splendid vistas. The stock shown is in good shape, can be moved at any time and is to be had in tremendous quantities. There is also grown a large acreage of deciduous trees. A very pleasant day was spent in the company of Mr. Atkinson, one of the owners. Mr. Brown found that some of the common green varieties of Holly are hardier than others, and his firm is importing the green and variegated varieties and will give them right surroundings in their nursery and expect to be able to grow them on without loss. If American purchasers will care for their Hollies, and plant them in correct (properly protected) situations, Mr. Brown has no doubt that many varieties can be grown here successfully.

The "jungle" growth, as the writer puts it, noticable in many parts of Europe, was also observed by Mr. Brown. The desire of land owners to completely screen their houses from the road seems to have developed a universal practice, and thus, from the street, the beauty of the home grounds is generally hidden from sight by a dense tangle of unchecked growth—entirely different from the style of open planting prevailing in America, which permits the passerby to enjoy the beauties of the lawn and their plantings equally with their owner. An advantage with the closed-in grounds, however, is that it enables a better scenic effect to be obtained from the mansion or house, and, as a rule, in these enclosures will be found beautiful bedding and complete rockery work. Hollies and Bays are used to good advantage to give effect.

—'Florists Exchange.'

Interesting Orchard Notes.

An Illinois horticulturist is reported to have originated a new berry called the raspberry-strawberry, it being a cross between those two fruits.

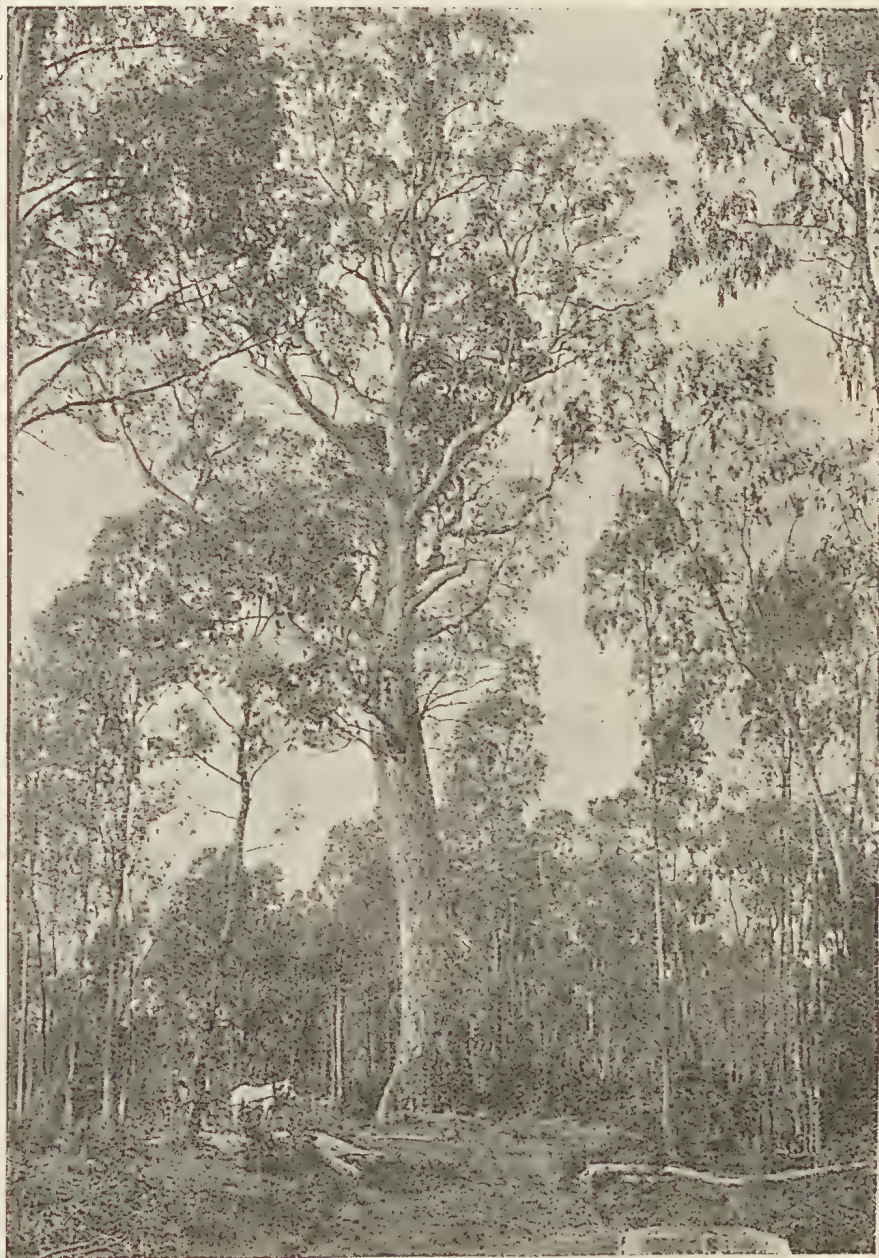
A farmer who has grown the new berry for three years says the bush is 3 feet high, and that the fruit has a more delicate flavor than either the raspberry or strawberry.

Damsons were cheap in London the last week of September. Some 5,000 half-bushels were sold in the two leading markets, and the bulk brought as low as eightpence the half-bushel. Plums and apples were also a drug, the latter only bringing 2/ a bushel for good fruit.

Grapes were sold in Covent Garden Market in early October last at extremely low prices. French grapes in fancy baskets, each containing 15lb., fetched 1/8 each. Spanish grapes realised 3d per lb., in 10lb. boxes. English hot-house grapes were never before sold so cheap. Muscats of Alexandria at 1/6 per lb., and black Alicantes at 8d.

Paderewski is an enthusiastic horticulturist, and his wife shares his passion. The pianist and his wife won prizes at the horticultural exhibition at Geneva, where Madame Paderewski carried off the silver cup and a special prize. The pianist himself sent 50 kinds of grapes, apples, and pears, grown at Riord Bosson, near Morges, and was awarded a special prize. Paderewski likes to use the pruning-hook and the watering-can, and often finds himself rushing from the keyboard into the garden.

The Japanese cherry is one of the most beautiful of flowering trees. The Mikado has paid President Taft the compliment of offering him a present of 5,000 of these trees for the adornment of the streets and parks of Washington. In recognition of the Hudson River Tercentenary



W. GILL,] "King" Tree, Wirrabarra Forest, Height 120 feet. (Distant View). [PHOTO.

celebration, the city of New York will also receive from the same source a gift of 300 Japanese cherry trees, to be planted by Japanese gardeners sent over for the purpose of seeing that they get the proper kind of start.

Several kinds of the rarer tropical fruits have recently made their appearance in London. From Madeira come the grana-dilla, one of the passifloras, a fruit like an egg in appearance, and full of sweet jelly. Another speciality is the *Monstera* deli-

ciosa; its long fruit resemble maize cobs; they ripen upwards, starting from the bottom, very sweet and luscious. From 60 to 80 cases of mangoes arrive weekly, and the first custard apples (*Anona*) are due to make their appearance. The consignments of Avocado pears (which are eaten with pepper and salt) total between 30 and 40 cases per week. These strange foreign fruits are increasing yearly in favor. No matter how large the supplies they are always sold. They provide a variety for those who can afford them, at a time of year when there is little choice.

BEE = CULTURE.

Bees in Relation to Flowers and Fruit-Culture.

By Isaac Hopkins, Apiarian, in Bulletin
18 of N.Z. Department of Agriculture.

II. IN RELATION TO FRUIT CULTURE.

(Continued from last issue.)

— Spraying Fruit-Trees While in Blossom. —

I do not know that it is necessary, to say much on this subject, as I dare say our orchardists are well aware that spraying trees with the usual poisonous mixtures while in blossom is not only injurious to the blossoms themselves by destroying the pollen, but also poisons the bees which visit them, thus defeating the object every orchardist should keep in view—the cross-fertilisation of the blossoms. In a number of the American States there are laws against doing so.

— Do Bees Injure Fruit? —

Fortunately, the ignorant prejudice against bees common some years ago amongst viticulturists and other fruit-growers is fast dying out. It was believed at one time in America that bees punctured and destroyed grapes and other delicate fruits, and, notwithstanding that the results of exhaustive experiment conclusively proved the contrary, it took a long time to convince them they were wrong. Bees cannot puncture sound grapes, but during a dearth of honey they will suck the juice from ripe grapes and other fruits *after* they have been punctured by some other animal, or have burst through overripeness. Sound grapes smeared with honey have been put into a hive containing a starving colony of bees: the honey has quickly vanished, but not a grape has been injured. Bunches of sound grapes have been left in four or five hives at a time, directly in contact with the bees and after three weeks every grape was perfectly intact, but glued to the combs.

— Conclusion. —

I could go on quoting the opinions of many other able authorities in the same strain, but enough has been said to convince orchardists, if it were needed, that it is vital to their interests either to keep bees or to see that there are plenty in the neighbourhood of their orchards. It remains only for me to say to those who wish to follow up their investigations on this subject, I would recommend them to read the works of Darwin, Muller, Lord Iveagh (Sir John Lubbock), and Cheshire.

I would point out that in New Zealand we have not the number of fertilising insects there are in Europe or America, consequently we are even more dependent on the hive bees than are orchardists in those quarters of the globe. I think I am correct in saying there are practically no other insects but the hive-bees about in New Zealand when fruit-trees are in blossom. Finally, as a summary, I will quote the conclusions of Herman Muller on the comparative value of bees as fertilisers. He says in his great work on "The Fertilisation of Flowers,"—

Bees, which not only feed on the produce of flowers but nourish their young also thereon, are in such intimate and lifelong relations with flowers that they show more adaptation to a floral diet, and are more important fertilisation of our flowers, and have therefore led to more adaptive modifications in these flowers than all the foregoing orders (of insects) put together. . . . Bees, as the most skilful and diligent visitors, have played the chief evolution of flowers; we owe to them the most numerous, the most varied, and most specialised forms. Flowers adapted to bees probably surpass all others together in variety of colour. The most specialised, and especially the gregarious, bees have produced great differentiations in colour, which enable them on their journeys to keep to a single species of flower. While those flowers which are fitted for a miscellaneous lot of short-lipped insects usually exhibit similar colours (especially white or yellow) over a range of several allied species, the most closely allied species growing in the same locality, when adapted for bees,

are usually of different colours, and can thereby be recognised at a glance.

THE END.



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Mixes with water in any proportion

One pound of Paste makes 30 gallons of Spray.

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complete, 5/

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WIRE, TINNED, Reels. 4-lb 5d, 4-lb 9d, 1-lb 1/3
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ZINC HONEY BOARDS (Queen excluding), from 1/

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do. do. Wired, with Starters 13/

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do. Gable Roof, with Half Storey set up and Painted, with sections complete, 15/6

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SHIPPING CRATE (to go under Cover), set up complete, 4/; also Separators

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FRAMES, LANGSTROTH, in Flat, 1/2 per set of 10, 11/ per 100

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do. WIDE for Sections, Set of 7 in Flat, 1/9

do. do. With Separators, do. 3/

do. do. Set Up, 4/

do. do. Made up with Sections, 1/ each, 7/ Set

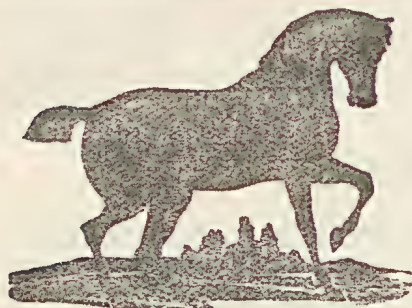
do. do. Separators for do., 1/3 set of 14

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THE FARM.

Pure-Bred Arab's Speed

At the recent sale of pedigree Arab stock at Crabbet Park, England, Mr. W S Blunt made a speech in which he related some interesting experiences on the breeding of Arab stock. He recalled that twenty-seven years ago the idea of producing a racehorse out of pure Arab stock was taken up by the Jockey Club, and that Lord Calthorpe, Mr. Chaplin, and Prince Batthyany had agreed to give prizes at Newmarket for Arabs. The idea was soon abandoned, for the English horse, which was three parts Arab, had been bred for speed for over 200 years, and the Arab could not catch him up during a man's lifetime. In trying to improve the Arab in the way of speed they risked losing the qualities for which he was prized—namely, his short strong back, his wiry sinews, his iron feet, and that nice balance of all his machinery which makes him the perfect horse he is.

Mr. Blunt was convinced that the Arab had in him the potentiality of high racing speed. The late Lord Bradford, he related, had proved that in conjunction with English his stock could win against English thoroughbreds. The best instance of this was when, in 1882, the late Duke of Westminster bought one of the Crabbet mares—Basilisk—and put her to his Derby winner Bend Or. By him he had a filly which he sold to Lord Bradford, who put her to his Chippendale, the produce of this second cross being a colt, who in 1894 won the Dee Stakes. Lord Bradford also won many hurdle races with another half-Arab colt by Chippendale out of another of the Crabbet mares

—Purple Iris—the produce in this case of a first cross. What was especially remarkable about both these cases was that the original Arab mare Basilisk was quite a small one, hardly over fourteen hands, while neither of the mares had individually the least turn of speed.

As to the Arab market, Mr. Blunt stated that he had heard from the largest Arab breeder in Continental Europe that the Arab stallion for half-bred stock was never so popular. He was selling freely to Germany, Austria, Italy, and Spain, all of which countries understood the Arab's merits, and employed him in their Government studs.

It has always been a matter of regret to him that so few first-class stallions had remained in England, where these would prove the best possible sires for hunter, no less than for polo stock. As it was, nearly all went abroad.

—'Pastoralist's Review.'

Ill-Fitting Harness.

Now that harvest work has begun farmers should show consideration for their working horses by seeing that the harness for each animal is a proper fit and in thorough order. Ill-fitting harness is a source of misery to horses, and it must be a monetary loss to the farmer, because if the horse is in pain it cannot do its best work or derive proper benefit from its feed. On many farms it would appear to be the usual practice to make the horse fit the harness, instead of having the harness to fit the horse. It does not seem to be realised that a badly fitting collar, even if it is only an inch too long or too short, or if it is too wide or too narrow, will gall shoulders just as surely as it is used. It is a barbarous practice to work a horse with galled or raw shoulders, and the man who does it deserves punishment. Not only is the poor animal in pain while working but he is tortured by flies when the harness is removed, and thus gets no rest. If the farmer is not sure of his own ability to decide when a collar fits aright, he should invoke the aid of a competent harness

maker. A perfectly fitting collar, and washing the shoulders at noon and night in strong lime water and then in clear, tepid water, will keep the shoulders of even young, newly-broken horses in good condition. The collar itself should be sponged clean daily if it is leather faced. The ideal fit of harness is described in the old expression, "Neither too free nor too bind," which means that harness should be buckled just tight enough to give a sense of support and prevent shifting, but not so tight as to cause undue pressure. Straps that are too long or too short mean misery to the horse. The exercise of care and proper judgment in connection with harness-fitting ought to be the rule of every farm.

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A pinch of salt and ashes will keep a horse from having colic.

* * * * *

Some people watch the copper coins so narrowly that silver dollars roll past them unobserved.

* * * * *

Tight binder canvases means extra and useless draft on the team. The canvases should be run as slack as possible, to have them carry the grain properly.

* * * * *

The South Australian Government have purchased, at £6 per acre, portion of the Koonoona Estate, near Farrell's Flat, comprising 8,698 acres, for the purpose of closer settlement.

* * * * *

The New York Department of Agriculture is trying this summer what it calls "shirt-sleeves" meetings—that is, small gatherings on farms where neighbours come together to talk over important matters.

* * * * *

While no class of farm stock requires less labor in their care, or cost less for their keeping than sheep, perhaps no class is more subject to ailment from over-feeding, or to drop out of business so quickly from this cause.

* * * * *

Tight binder canvases cause the rollers to become warped out of alignment, and the roller bearings to wear rapidly. They mean extra horse-power, and extra horse-power means more feed and less acres harvested, which all sifts down to a smaller net profit per bushel of grain.

* * * * *

The binder chains come in for a good deal of hard wear during harvest. Secure a stick of graphite and rub them well before putting the machine into the field, keep them well oiled and supplied with graphite, and give them moderate slack, and you will be pleased with the result.

"The prize was given to the man, not the colt," is a familiar ring-side reproach, which, though often true in fact, is not always deserved as criticism. The judge may be quite justified in giving the prize to an exhibitor who shows a well-mannered entry, not too shy to bear inspection, over a competitor whose colt manages to keep its dam between it and the judge. If you have a beast to show, train it, or don't blame the judge if he gives a poorer one the prize.

* * * * *

Mr. A. E. Braund, consular representative for the Argentine Republic, writes—The question as to whether sheep inscribed in the Australian flock books would be eligible for inscription in the Argentine flock books has been frequently asked, and, in order to clear up this important point, a cable was sent to the Argentine Government, which has brought back the reply that sheep inscribed in the Australasian flock books are eligible for inscription in the Argentine flock books.

* * * * *

Economy and celerity have displaced in Great Britain the characteristic features of the old-time harvests. "The Times" estimates that the harvest outlay now would run from 5/ to not more than 10/ per acre, whereas, in the old days, what with the vast amount of hand-labor, and the querulous and incessant calls for beer, it was a slow and risky process, costing £1 per acre for cutting and stooking alone. This great improvement has been achieved largely by the advent of the self-binder.

M. L. Tomlinson,

(LATE J. G. ORAM),

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THE DAIRY.

Developing a Dairy Herd.

"Southern Farmer," in Queensland Agricultural Journal, gives the following notes on raising a good dairy herd:—

If we would produce good milkers we must have good stock to breed from as well as the proper barns and conveniences for caring for them. It matters not what dairy breed is selected, for they are all adapted to some particular purpose, some perhaps better than others, but from my observation the man who succeeds with one breed, in most cases, would succeed with another had he selected it for the particular branch of dairying he intended to follow.

The cow from which the dairy heifer is to breed must be, in form and appearance, and also in acute service, a good milker, possessing in herself as many of the desirable qualities as can be found. The bull to which she is coupled should be descended from a good milk-producing family, and the breeder should be assured of the fact by a pedigree, if possible (at all events by a knowledge of the ancestors for a number of generations, both male and female), as a bull can get from 50 to a 100 calves in a year, and a cow a single one, and as you may have a large number of cows, it is very important that he be certain in his qualities.

By following this plan you may in a few years build up a herd of very good cows from ordinary grades through the good qualities of the bulls, and by following up this plan for four or more generations, it will result in as good cows for all practical purposes as the pure breeds, that are out of reach of most dairymen who depend upon the profits from their dairy products alone.

Age Limit of Dairy Cows.

A bulletin from the Wisconsin Station (United States) states that a cow is at her best during her fifth and sixth years, up to which time the production of milk and

butter-fat by cows in normal condition increases every year. The length of time the cow will maintain her maximum production depends on her constitutional strength, and the care with which she is fed and managed. A good dairy cow should not show any marked falling-off until after ten years of age. Many excellent records have been made by cows older than this. The quality of milk produced by heifers is somewhat better than that of older cows, for a decrease has been noted of one or two tenths of 1 per cent in the average fat contents for each year until the cows have reached the full age. This is caused by the increase in the weight of the cows with advancing age. At any rate there seems to be a parallelism between the two sets of figures for the same cows. Young animals use a portion of their food for the formation of body tissue, and it is to be expected, therefore that heifers will require a larger portion of nutrients for the production of milk or butter-fat than do other cows.

News and Notes.

Comfort and abundant feed are the keynotes to success in handling the dairy herds. Without comfort the milk-flow will dwindle.

If your cow has the heifer calf that you desire, the proper thing to do is to teach it to drink milk out of a pail just as soon as possible.

The Danish farmer now does not confine his effort to keeping records of his cows, but the cow-tester also keeps track of the ration that is fed to the growing heifers and to the dry cows.

The cows udder is of special importance. It should be large and its skin thin, with loose, soft folds extending away back, capable of great distension when filled, but shrinking back when empty.

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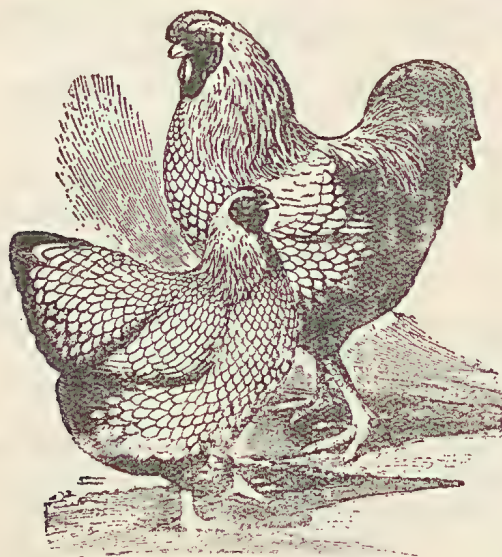
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❖ ❖ The Poultry Yard ❖ ❖

An American Authority on Australian Laying Records.

The faithful little Leghorn has again demonstrated that she is a payer and a great money maker if given care and attention. We have at hand the records of the latest Australian laying competition held at the Hawkesbury College, the original year tests, and note that a pen of six White Leghorns, Single Combs variety, made the remarkable record of 1,379 eggs. For the two years just ended a pen of Whites of the same breed made the record of 2,624 eggs, the same six hens competing from the start of the two years to the end. At the top of the list for the last year's competition are five pens of Leghorns, all Whites, none of them falling below 1,312 eggs for the six hens or pullets in the yard. This means something to the Australians, for they have been breeding now for about ten years for better layers and are getting them better every season. Black Orpingtons were sixth in line with a record for the year of 1,288 eggs. This breed also produced the highest number of eggs in one month, 159. A hundred and fourteen Leghorn layers in the last year's test laid

an average of 199 eggs each, which is pretty fair, anyhow, with the lowest pen of this going but 949. Black Orpingtons made an average of 177 eggs for each layer in the year's contest. Egg laying competitions have been so helpful in getting the poultry industry of that country to the front that the breeders there have developed into the greatest fanciers the world has ever known and already hens from that sunny clime have travelled this way to make their mark. The heat and dryness of the past couple of seasons has contributed largely to the successes of the Leghorns, so Mr. Thompson says, who has charge of the contests, and on one day the glass rose to a hundred and sixteen, which puts a crimp in the record that Kansas set during her time of the blues. Forty hens succumbed to the heat on that day, so the report of the test declares. During the early tests the Black Orpingtons and the Silver Wyandotts held the palms for high averages and the men who are closest in touch with these tests say that when the cycle of wet years comes 'round they will take their place at the head of the lists.

Feeding for eggs has been reduced to a wonderful science in Australia, as the work of those who feed the layers to attain

such averages will attest. The poultry show and competition in it is not lacking there, either. They hold just as good shows as ever they did, but the laying contests keep the live fanciers awake every month of the year, for the standings of the various pens are made known from month to month. Attempts over here to hold laying tests of any considerable scope have failed, but we hope before long to chronicle that breeders have at last agreed to get things going along this line.

—'American Poultry Journal'

Poultry Degenerating.

A Michigan Farmer, in an exchange, writes the following on this subject:—

Any of us can recall some instance in which someone has gotten a bad attack of hen fever, or a fever for some pure-bred fowls. We can also recall how this party would work early and late to fix a home for his fowls after they were purchased, besides reading all the poultry literature he could gain possession of. In nearly every instance the fowls respond to his labours by shelling out eggs at a lively rate. Then how he would talk of his big egg yields, thinking that he had the only fowls on earth worth keeping.

But just lay low a year. When the routine of poultry keeping gets to be an old story he will neglect the duties that a year previous would never have been left undone, and what is the result? We meet him on the street and ask him how his hens are laying. He will probably say, 'Oh, just fair,' but if you press him a little he probably tell you he has been so busy with other work that he hasn't given them the care and attention that he ought and they are not laying well. Just watch him for the next year or two and I wager that you will find him out of the poultry business and, when asked about it, he will tell you that those pesky hens were a lot of work and bother, and that they ate their heads off after the first year.

This is no question but what the ancestors of our domestic fowls, no matter

whether they are black, white, brown, or red, were the red jungle fowls of India. These fowls resemble the Indian game in size and shape. The home of these fowls was in the forests and thickets, where they live generally in small colonies, and after the harvests they would roam the cultivated fields in search of stray heads of grain. The hen would lay from ten to fourteen eggs on the ground in the thicket, where she would hatch her little brood twice a year, such a thing as an unfertile egg being unknown.

Compare this natural poultry breeding with our poultry farms of to-day, where thousands of hens are kept, some of them laying over two hundred eggs a year, and on many farms the hens are not allowed to sit at all. Incubators are used for hatching and brooders for brooding, while the hens are kept steadily grinding out eggs. Some poultrymen go as far as to say that chickens hatched in an incubator for three or four generations have the desire to sit bred out of them.

Some of our best egg yields are made by flocks owned by beginners, the beginner often beating the old-time poultry keeper by a long way. There is a reason for this: the beginner generally has a new building, and the most up-to-date fixtures; his runs are on new ground, and his fowls are not run down by inbreeding. As poultry keeping is a new thing to him he takes better care of his fowls, fights the lice harder, and gives a greater variety of food than does his brother who is an old hand at the business.

I think inbreeding weakens more flocks than any other one thing except lice. At the same time I believe in inbreeding, but it must be done systematically and according to well-defined principles or the result will be swift deterioration.

Do not allow your fowls to 'run out' from neglect, breed from your best, keep your houses clean and free from lice, do not allow your runs to become contaminated, supply a sufficient amount and variety of food, give them your best care and you will have no chance to complain of a 'run out' flock.

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Poultry Brevities.

Don't tolerate mongrels.

Isolate at once all sick birds.

Keep the water in a cool place.

Give a little linseed occasionally.

Don't crowd the growing youngsters.

Leg color is best preserved by moisture

Maize is the food most relished by fowls.

Confined birds should have plenty of green food.

Remember the chicks need constant attention from birth till disposed of.

Never try to raise deformed chicks. They should be killed as soon as hatched.

Eradicate the fox and see that the roosting places are securely fenced with wire-netting.

Culling the flock of youngsters is one of the most important duties. Weed out the useless ones often.

Before finally closing down the incubator, fumigate it with sulphur. Many a good egg is spoiled by mustiness at a time when every egg counts.

The Simplex Incubator, one of the best in the market, can be procured from Mr. D. Lanyon, Rundle-street, Kent Town. See adyt.

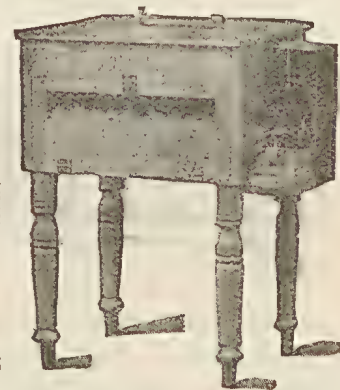
Don't let the chicks roost too early.

It is time and effort wasted to try to bring to maturity chicks that have been hatched from eggs laid by debilitated parent stock.

Keep a good supply of cool, clean drinking water, and see that it is well shaded. Erect sun shelters so that in hot weather the birds may have some protection.

Grow green food wherever possible. If not, use wheaten hay chaff steeped in hot water for a few hours and then mix with bran and pollard. This saves cost of feed and gives more eggs.

With the approach of warm weather vermin will increase if not checked. The poultry tick must be eradicated. The carelessness of some people over this matter in the past has led to the spread of tick in many localities. Under the provisions of the Stock Act tick must be destroyed—there are penalties for not doing so.



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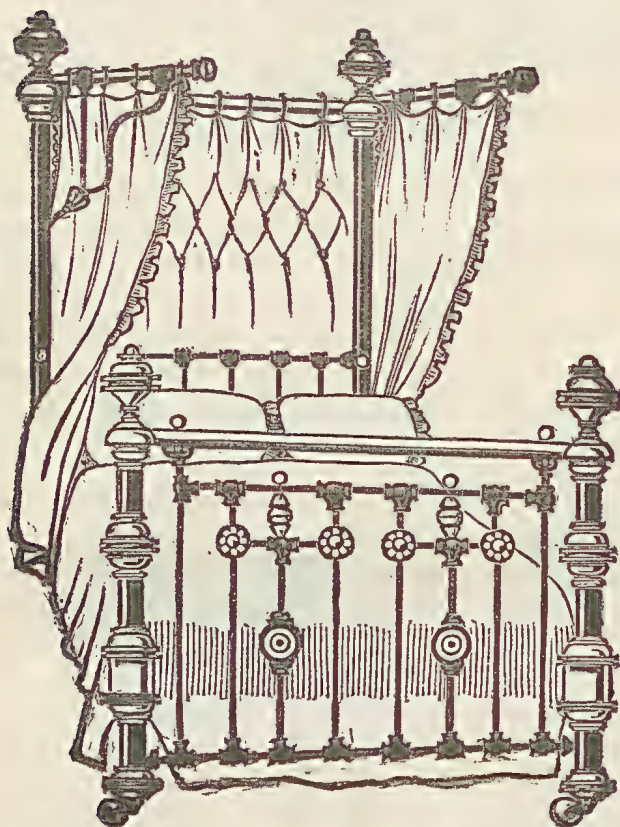
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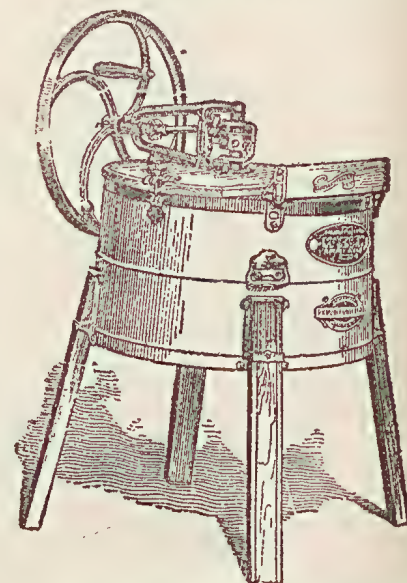
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The Young Folks.

The Friend of Man : Some uses of the Dog.

II.—The Eskimo Dog.

Both the Eskimo dog and the Arctic wolf are very much alike. The Eskimo dog has a sharp-pointed nose, pricked ears, and a long, bushy tail. Its height is about two feet and a half, and its colour is usually fawn or white, though it is sometimes darker. The dog is found along the northern coasts of Asia and America, and in Kamschatka and the Kurile Islands. In many of the countries where it is found it is used by the Eskimos to draw their sledges; but in other places it is used simply for hunting. The Canadians at the fur stations around the shores of Hudson's Bay also make use of these dogs for drawing their sledges and carioles the latter being a kind of sledge fitted with a little cradle or cot on which the traveller sits.

The sledge-dogs, when not at work, are fed upon refuse; but when they are on a journey or about to commence one, they receive more wholesome food, like fish or meat. They are great thieves, and they will eat any scrap of leather or hide, including moccasins, reins, or harness, when they are hungry.

The sledge-dogs are carefully trained to their work. The training of those born in winter begins in the following autumn; they are used only in short journeys at first, and not until their third year are they sent out upon long ones.

The Eskimo's team usually numbers twelve dogs, the best trained being placed in front as leaders. Sometimes a clever leader is made to run on in front, unharnessed, to pick out the way for the team. In Alaska the leader is harnessed to the main trace and the others are attached to the same trace in pairs, but in Greenland each dog is fastened to the sledge by its own trace. The harness consists of straps of seal skin or bearskin placed round the dogs body, shoulders, and chest; in some regions the dog's feet are put into fur shoes for protection.

The work which these dogs will accomplish when they are in good condition and well fed, is surprising. For short distances, when the road and weather were good, they have been known to travel from 60 to 90 miles in a day. In Canada, a team of three dogs, drawing a load of three hundred pounds, will usually run forty miles a day across level country, and will keep this speed for ten or twelve days in succession.

The leaders are very clever in picking their way; a sledge road is at best only the beaten track which has been made in the snow by the passing of several sledges and when fresh snow falls it is soon hidden. The Eskimo dog has a keen scent and also a kind of instinctive knowledge of direction, and if he is travelling where he has been before, he is rarely lost. The leaders can generally be trusted to take the sledge home and to stop at the right place, even though it be buried in snow. The dogs know, too, when they are walking on thin ice, and without any warning from their drivers they spread out on each side, in order to distribute their weight over as large a surface as possible; they frequently do this before the driver discovers that there is any danger.

The sledge dog is just as clever when he takes to bad ways as he is in his work. The following incidents, taken from the narrative of a traveller who made a sledge journey in Canada, will show the truth of this;—

In the course of the journey the guide stopped to make a cache or store of pemmican, which was to be opened on the return. He cut a hole in the ice some distance from the track, and hung a bag of pemmican in the water below by means of a leather thong and a stick, he filled up the hole with ice, poured water upon it and the intense cold froze it all solid. More ice was placed upon the top and united in the same way, to form a mound to mark the spot. As the guide turned to go back to the sledge, he saw one or two of the dogs were watching him, the driver having released them under the idea that the camp was being formed. The guide knew by experience that the dog would

tell the others, as he said, and would get the pemmican if they could; he therefore pushed on for several miles before he allowed the camp to be formed. He counted the dogs after supper, and, finding none missing, he and the travellers lay down to sleep.

On the following morning, several of the dogs could not be found, but their tracks were discovered leading in the direction of the cache, and there they found the dogs scratching away at the ice. They had not made much impression when the men arrived, but they would persevere until they reached the pemmican if they had not been disturbed.

When the nights were very cold, the dogs buried themselves in the snow; in the morning they did not always answer their master's whistle, and lay close in hiding. The only way of getting ready for the start was to unearth them one by one; the men walked round the camp-fire in circles, making each one wider than the last, until they had discovered all the dogs by stumbling over them one by one. Each dog showed by his downcast looks that he knew quite well how much trouble he had caused. On one occasion the start was delayed for more than three hours by the dogs sullenly hiding in this way.

—W. A. Atkinson, in 'The Prize.'

Conundrums.

What is the difference between the soft pedal of a piano and a doctor at an inquest?

One deadens sounds, and the other sounds dead 'uns.

.....

Why is a hostelry of ill-repute like a fiddle?

Because it's a violin (vile inn).

.....

Why is a candle maker the most sinful and unfortunate of men?

Because all his works are wicked, and all his wicked works are brought to light.

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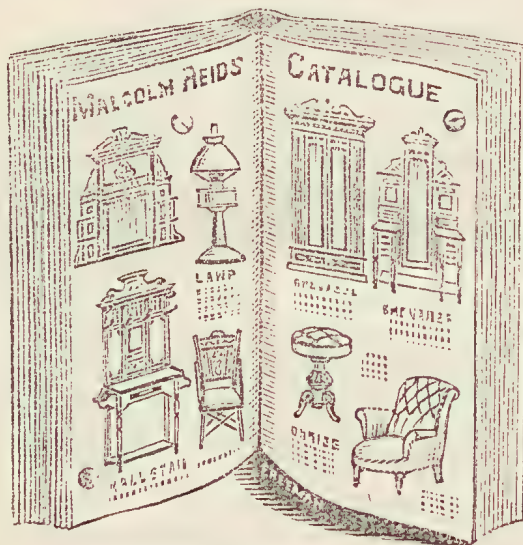
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WIT AND HUMOR.

— A Real Grafter. —

'He's a professional grafter.'
'Who?'
'The nurseryman.'

— 'Two Extremes' —

'Have you ever met my sister, Louisa?'
'Yes. She's rather stout, isn't she?'
'I have another at home—Lena.'

— 'Tricky.' —

'You know Fatty Schultz, the butcher?'
What do you suppose he weighs?'
'I don't know. What does he weigh?'
'Meat'

— Clever. —

'My sister had a fright yesterday. She had a black spider run up her arm.'
'That's nothing. I had a sewing machine run up the seam of my trousers.'

— The Reason Why. —

Samso—'He is not rich and yet he makes a great deal more money than he spends.'

Rodd—'How can that be?'
Samso—'He works at the mint.'

— A Biblical Puzzle. —

'Who was the first one who came from the ark when it landed?'

'Noah.'

'Don't the good book tell us that Noah came forth?' So there must have been three ahead of him.'

— Three Feet One Yard. —

A wag who thought to have a joke at the expense of an Irish provision dealer, said: 'Can you supply me with a yard of pork?'

'Pat,' said the dealer, to his assistant, 'give this gentleman three pigs feet.'

— Naturally. —

'Do you believe in the power of the human eye with a wild beast?' asked Gableigh.

'Yes,' said the professor; 'the power of the eye is very useful—to see the wild beast coming.'

— A Natural Mistake. —

'Let me see,' said the minister, who was filling out the marriage certificate, and had forgotten the date. 'this is the fifth is it not?'

'No, sir!' said the bride with some indignation, 'this is only my third!'

— Quite True. —

Diner: 'Hello! waiter, where is that ox-tail soup?'

Waiter: 'Coming sir—half a minute.'

Diner: 'Confound you! How slow you are.'

Waiter: 'Fault of the soup, sir. Oxtail is always behind.'

— An Insidious Catch. —

Jones: 'Now, Bloggs, there is a notice over there which reads 'To be Let or Sold.' Can you make it read 'To Be Sold' by removing one letter?'

Bloggs: 'No, Jones I am not clever.'

Jones: 'It seems simple enough to me. There is only one 'Let or' in the phrase. If you take it away we have 'To Be Sold' left. I find no difficulty whatever.'

— Done at Last. —

Jim: 'How many are twice one?'

John: 'Two.'

Jim (rapidly): 'Twice Two?'

John: 'Four.'

Jim: 'Twice Four?'

John: 'Eight.'

Jim (with terrific speed): 'How many pennies in a dozen.'

John (gasping): 'Twelve.'

Jim (faster): 'How many halfpennies?'

John: 'Twenty-four.'

Jim (blandly): 'Oh, no, quite a mistake John. Twelve, John, Twelve.'

— Not so Old as it Looks. —

Smith: 'At the bottom of a well, 30 ft. deep, is a rat which climbs five ft. in the daytime and loses four feet in the night. How long would the rat take to reach the top?'

Brown: 'So old, Smith; so very old. It climbs a foot a day for twenty-five days, and then on the twenty-sixth day it climbs the other five feet, and so it reaches the top in twenty-six days.'

Smith: 'Ah, Brown, your rat might have done that, but mine was dreadfully unfortunate. It climbed five feet on the first day, but, alas, it lost its four feet in the night, and so it's still at the bottom of that well. Poor little rat!'

— The Little Games they Play. —

Young Wife: 'What are you going to give your husband for a birthday present?'

Old Matron: 'A hundred cigars.'

Young Wife: 'And may I ask what you paid for them?'

Old Matron: 'Oh, nothing! For the last few months I've taken one or two out of Henry's box every day. He hasn't noticed it, and he'll be so pleased with my little present and the fine quality of the cigars.'

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For the Ladies.

Christmas Boxes.

Christmas boxes are no new thing. Gay alludes to them thus:

'When time comes round, a Christmas box they bear,

And one day makes them rich for all the year.'

Brand says, in his 'Popular Antiquities':—'The butcher and the baker sent their journeymen and apprentices to levy contributions on their customers, who were paid back again in fees to the servants of the different families. The tradesman had in consequence, a pretence to lengthen out his bill, and the master and the mistress to lower the wages on account of the vails.'

Christmas boxes used to be levied, blackmail fashion, in the city of Exeter quite as late as 1737, and the practice is thus alluded to in the 'Mobiad; or Battle of the Voice,' a political satire published in the year 1770:

'The Christmas Day morning is most scandalously abused here, and there is a hellish variety of other wickedness and outrage. Meanwhile some accompanied with fiddles, others without them, rove about the city, and under windows sing carols, and make them in deeds the songs of drunkards. And for such impudent profaneness they are rewarded, having not only Christmas drink, but demanding box-money to be more drunk with.

Beauty Sleep.

A young woman—otherwise in every way attractive—was growing round-shouldered.

She banished the tendency to bend undesirably by grasping the fact, too often lost sight of, that beauty may be in the making whilst we sleep.

Remembering that she passed something like a third of her life in slumber, this sensible person determined at the cost of whatever discomfort, to go without a pillow, and to sleep flat on her

back, with her shoulders in an absolutely straight position. The result was that the habit, which it was almost impossible to keep constantly in mind during the daytime, was done away with.

The skin should be nourished for the beauty sleep by washing it in warm water with a little oatmeal introduced, just before retiring, or by rubbing in some skin food or emollient cream.

Above all see that your bedroom is properly ventilated, leaving registers open in the fire-grate, as well as windows down at the top. That beauty-sleep may be enjoyed in perfection, the temperature should not be above sixty degrees.

The mouth should be kept closed, if not naturally, by a chin-strap, as this induces deep breathing, one of the secrets of good circulation and good complexion. A sufficient amount of sleep must be taken, or the complexion will speedily show it. One hour added to the old saying of 'six hours for a man and seven for a woman' is about right. If there be a desire to sleep longer, it points to indigestion or overeating.

—'Scraps.'

Who Should Wipe the Dishes?

'Don't you think, Minerva,' said Mr. Backenstots, anxiously as he tied the strings of his kitchen apron firmly around his waist, and tucked his whiskers carefully behind the bib to keep them out of the dish water—'don't you think that we are carrying this idea of co-operation in domestic matters to extremes? I have been washing dishes for a week now, and between times I have been doing a little scriptural reading, and I can't find in the Bible any authority for men doing kitchen work; on the other hand, women are frequently spoken of in this connection. She looketh well to the ways of her household,' She worketh willingly with her hands,' 'She riseth while it is yet night and giveth meat to her household;' these quotations, Minerva, would seem to warrant the conclusion that household duties should properly be assigned to the woman.'

'My dear,' replied his wife, 'like the rest of your sex, you are adapted to thorough research, but are painfully superficial. If you pursue your studies further you will find in Kings, 21st, these words—'I will wipe Jerusalem as a man wipeth a dish, wiping it and turning it upside down.' This conclusively proves that you are nobly, although quite unobtrusively, doing the work designed for you by providence. When you are through, be sure and wash the towels clean, rinse them, shake them and hang them straight on the rack. Death, you know, George Henry, lurks in the dish-cloth.' And Mrs. Backenstots tied her bonnet strings in a butterfly bow and went out to attend a meeting of the Society for Extinction of the Microbe by Means of Electrocutation.

The Human Race as Part of the Vegetable World.

Councillor J.L. Currie, of Hampden-shire, has discovered a physiological significance in poetic similes. Since women are said to be 'fair as lilies' or 'modest as violets' while men are 'green as cabbages,' or 'bald as a pumpkin' he concludes that the human race must be a part of the vegetable world. A necessary consequence is that the devotees of the nuts-and-fruit diet are cannibals, but probably Councillor Currie did not mean to condemn so utterly a fashionable fad of the time. His fancy suggests a new way of writing the simple romances which occur in the garden of modern society:—

A cabbage in a garden
Adored a blushing rose;
His passion (past all pardon)
He dared not disclose.
That sweet and fragrant blossom
He longed in vain to hug.
For love within his bosom
Was gnawing like a slug.

Such feelings always harrow
The soul when love takes fire;
His vegetable marrow
Was burning with desire.
When ever he espied her
He dreamed of pleasant scenes,

Of cool, green Peace beside her,
And other Might-have-Beens.

But since he would not woo her
She drooped from hour to hour,
For want of a pursuer
A melancholy flower.
A lover who's a Molly
Becomes a nauseous joke;
Heart-sick at his folly
She gave a hearty choke.

A Pumpkin bald and knowing
Lived in that garden fair,
He marked the sweet rose glowing,
The cabbage sighing there,
Said he, 'He seeks to martyr
His passion I suppose;
I too will be a starter
'Though reddish is my nose.'

'Gives me the pip,' he shouted,
'Whenever beauty grieves?
Let me' (the rosebud pouted),
'Take what the cabbage leaves!
She on the pumpkin simpered;
The cabbage sadly looked:
'I'm quite cut up,' he whimpered,
'I realise I'm cooked!'

— 'Woomera' in 'The Australasian.'

HOUSEHOLD HINTS

— A Mustard Mem. —

If mustard be mixed with water that has been boiled and allowed to cool, it will keep its flavor and color a long time.

* * * * *

— Worth Knowing. —

A teaspoonful of salt and a dessert-spoonful of lemon juice answer the same purpose as 'salts of lemon' for removing iron-mould from linen. Moreover, the mixture is not a poison, nor will it prove injurious to the linen.

* * * * *

— Goose Stuffed with Potato. —

A nice young bird, mashed potato, two onions, half an ounce of butter, pepper and salt, a little powdered sage, and one pint of apple sauce is required to bring the above to a successful issue.

Chop the onions, parboil and drain them, fry in a little butter till golden brown, and mix with sufficient mashed

potato, which should be highly seasoned, and fill the goose. Truss and roast the bird in the usual way, and serve with brown gravy and apple sauce.

* * * * *

— Cheese and Cucumber Sandwich. —

Cut some nice even slices of bread, butter them well, cut some cheese in thin slices, or grate some that is stale, which will do quite as well as fresh new cheese spread this freely over the buttered bread with a little pepper and salt. Peel the cucumber, cut in thin rounds, and cover the layer of cheese with the slices of cucumber, cover this with a nicely buttered slice of bread; press the edges well together, trim off the crust. Dish them on a lace paper or napkin, with a sprig of nice green parsley to garnish it.

* * * * *

— Iced Chocolate Cake. —

First make some Genoese pastry with the weight of three eggs in butter, sugar and flour. Bake in flat tins half an inch in thickness. Cut out four rounds the size of a saucer, leave the first round whole while the centres of the others have to be cut out leaving a border about one and a half inches wide. Pile these one on the other and just stick together with chocolate icing. From the pieces cut from the cake, cut out some half moons and decorate the ring with them. Cover the cake with a good vanilla icing. When cold fill up the centre with whipped vanilla cream.

Remarkable Pie-Melon Growth.

Twelve months ago Mr. E. Yendall of Drayton street, Bowden, placed a fair sized pie-melon in a cupboard. When he went to inspect it he found that the melon had burst to its full length and the seeds had started to grow, some of the young plants having attained a height of from three to four inches. This is another instance of nature trying to reassert itself — the plant endeavouring to reproduce its species under unfavourable circumstances.

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January Number of

1910

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry),

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Illustrations—

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Gloxinias
Cineraria Hybrida Grandiflora
Calceolaria Hybrida
'Deglet Nour' Palms in Fruit, Lake
Harry
'Montefiore,' North Adelaide, resi-
dence of Sir Samuel Way
Red Gums, growing by the Spring
Creek Weir, near Mount
Remarkable, Willowie Forest
Government House, Adelaide

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QUERIES.—Readers are invited to send us queries on any matters on which they want information. No charge is made for the insertion of questions, but the following conditions should be borne in mind, 1. One question only should be written on one sheet of paper. 2. One side only of the paper should be written upon. 3. Querists must forward their names and addresses (not necessary for publication).

ANSWERS TO QUERIES.—The queries sent us will be answered by men who know the subjects, but at the same time we shall be glad to receive answers to any published from readers who can give the information asked for. Our aim is to get our readers to help one another, and no one is better able to help a small gardener than another owner of a small garden who has gained experience in dealing with the many difficulties that have to be faced.

D.J.A., Wallaroo Mines.—Your Narcissus bulbs have evidently been starved by the Wallflowers.

'Anxious.'—The condition of the foliage is evidently due to the prevalence of cold east winds, and there is nothing you can do to prevent these.

EDITORIAL.

WE have pleasure in presenting our compliments and very best of good wishes to the readers of the "Australian Gardener." We do so in the spirit of gratification for the splendid support they have afforded in the past, and the encouraging help offered for future work. The public have shown that they appreciate information upon gardening in all its beautiful phases of work and interest. We believe that no country in the world has a keener inherent love of Nature than Australia, and it only requires direction and a little inspiration to work the people up to an enthusiasm, such as is witnessed in the old country. Australians have everything in their favor for growing flowers to enjoy, and to send to the markets of other countries. The prime products of wheat, wool, and minerals have received the concentrated attention of the commercial people, and it is only during the last few years that much has been done in the matter of wine and fruits. Now we would suggest that more attention be given to an exchange of products of the floricultural world. The climatic conditions are favorable to the production of everything of value in the Northern Hemisphere. Why should we not supply the old world markets? We leave the suggestion with those in the trade who are able to cope with it.

To all in the trade we wish success, whether producing for profit or pleasure, or in the literary world, disseminating information, and to all our readers interested in the most beautiful handiwork of God in Nature we sincerely wish a HAPPY & PROSPEROUS NEW YEAR.

Notice of Removal.

Owing to the great increase of patronage we are receiving from the public, it has been found necessary to enlarge our Staff and Printing Plant, to do which we have been compelled to remove to

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Portuguese Laurel (*Laurus Lusitanicus*).

This magnificent tree shown in full bloom, with long racemes of flowers, snowy white, 6 to 8 inches in length, is usually grown as a shrub, but the subject of this illustration is some 25 feet in height—undoubtedly the finest of its kind in the State.

The Flower Garden.

Notes for the Month.

There should be no lack of color in the garden in January. We are now being rewarded for the year's labors by a wealth and profusion of bloom. We have but to maintain it through the hot trying months to follow. The operation of watering has become tedious and monotonous in the extreme, but if anything can afford us consolation it is the magical effect it has on the drooping flower and

flagging leaf after blistering sun and withering wind have done their worst. There is often a lull towards evening, and in the softening light that follows the sunset, in the moisture laden atmosphere we have credited, when the cooling spray of the hose has called back the color to the plants with an additional intensity, and caused a perfumed incense to ascend from every flower, we are permitted to enjoy those rare moments of peaceful enjoyment. Moments worth waiting. Worth striving for.

— Dahlias and Cannas. —

Dahlias and Cannas are a host in themselves for decorative purposes, but the luxuriant growth and wealth of blooms we desire above all things in them can only be encouraged and maintained by liberal supplies of water. In the case of the former, where the soil has not been well enriched frequent supplies of liquid manure should be given. Dahlias must be secured to stout stakes, one to each stem; their effect is spoilt at once if they are allowed to flop. With summer annuals it is better to rely on close planting, by which they support each other, and due attention to strengthening growth by pinching than to have the garden bristling with stakes.

— Cuttings. —

Cuttings can now be taken of phloxes, verbenas, antirrhinums, pentstemons, lantanas, pelargoniums, petunias, and the side shoots of pansies and hollyhocks. Choose nice short-pointed wood for cuttings.

— Carnations and Verbenas. —

Carnations and verbenas can be layered now to increase them.

— Sowing Seed. —

Seeds of Balsam, Begonias, Calceolarias, Cineraria, Cyclamen, Gloxinia, Primula, Pansy, and Phlox may be sown this month.

— The Seed Vessels. —

If seed vessels are to be saved they must be carefully watched as the ripening season approaches, but if a prolonged period of bloom is desired the plants should be relieved of all dead flowers.

— Bulb Planting. —

The planting of bulbs that have been lifted may be begun within the next few weeks. Many varieties are positively injured by remaining too long out of the ground.

— The Lawn. —

The lawn should be frequently mown, so that the growth will be kept close and fine and even. Give them manure occasionally to stimulate the growth. An occasional sprinkling of wood ashes is said to be very beneficial.



A Fine Collection of Gloxinias.

— Attention to Borders, &c. —

Allow no gaps to remain in the borders, as they seriously mar the general effect. Substitute failures with plants kept in reserve for the purpose, and fill in spaces and annuals of free and rapid growth. Make note of any errors in grouping, or, on the other hand, of any striking and successful effects that may have been accidentally obtained. Closely observe the relative heights, the spread, habit, and character of all plants; also their colors. Any similarity there may be shade or form, their period of bloom and its duration to aid in future grouping and arranging.

— Perennial Phloxes. —

Perennial phloxes are among the most decorative things in the border. They are gross feeders, and amply repay a rich soil and abundant supplies of water. The best blooms are produced on two and three year old plants; after the fourth year it is advisable to make a fresh planting. Stronger and better plants

result from cuttings than from divisions. Pinching and cutting back the shoots will induce them to bloom well on in the autumn.

— Cockscombs. —

Cockscombs, with their rich and varied tones and unique character of growth, are admirable little border plants. Plenty of sun and water are their principal requirements.

— An Improvement to Borders. —

Nicotiana tabacum is a very desirable thing on account of its handsome tropical looking foliage and the ornamental flower it bears. It considerably adds to the effect of a border, and is easily raised from seed.

— Budding and Pruning Roses. —

Roses can be budded during this and next month. Take buds from those it is desired to propagate, and insert in a seedling briar stock. In some cases, with *Marechal Niel* for instance, the *Banksia* can be employed. Tea roses judiciously

pruned at this season will be encouraged to produce better blooms in the autumn. Much of this pruning can be done when the flowers are cut if care is taken always to cut back to a strong outside bud. Many plants can be induced to bloom continually if they are occasionally sheaved over. It is generally easy to see when this method will answer by the fresh growth that is always found springing up from its base. *Coreopsis* and *antirrhinums* can be thus dealt with.

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Cineraria Hybrid Grandiflora.

Description of Flowers.

Cinerarias.

Towards the end of July the glass-houses in the public Botanical Gardens are a constant source of attraction to visitors, and with good reason. There lovers of the beautiful in bloom linger with longing gaze and expressions of admiration upon the delightful hues of the richest colourings and sweetly pretty tints of the Cinerarias. The sight gives rise to many a heartfelt wish that the visitors could grow flowers so delightful to adorn their own homes. And why

should they not? Many and many a window looking forlorn with uninviting and inelegant faded drapings and curtains could be made attractive and cheerful with a pot of lovely Cinerarias, and kept so many weeks. Even the foliage is rich and beautiful long before the flowers come to complete the adornment. Not only could this be so in the cottage window, but the stately drawing-room could be made brilliant in live coloring by the addition of a plant or two of this most lovely flower. True it is generally regarded as a florist's flower, but florists have by no means the monopoly, as some

of the most magnificent displays of it are seen outside the florist's domain. We have seen them in the open beds, not by being transplanted from the pots when just coming into bloom—which is a common practise, and a happy idea, too, of the professional gardener—but grown in the beds from seedlings. This notwithstanding that they are fair game for Jack Frost, who looks upon the broad delicate foliage as his special prey. But they are essentially a greenhouse plant to be grown in their best garb of glory.

— Raising from Seed. —

The Cineraria is a plant the amateur can grow to advantage, as it is easy cultivated, and the flowers show a brilliant range of colors. Those who intend to

grow the plants should commence with seed-sowing in early summer, say the present month, although some sow before that time. Some grow their stock on rather freely, and in the end they have plants with large, succulent leaves for their extra pains. Plants grown in this manner frequently lose the best of their foliage before the winter season is got through, thus presenting an ungainly appearance when in flower. When sowing at this time is practised, there is a long enough period wherein to obtain plants of good size before the winter sets in. These should not receive any check from the time the seed germinates until active growth is almost over in the late autumn.

When sowing cover the seed thinly with fine-sifted soil and press the surface firm. When the seedlings are large enough to handle, prick them out in pots or pans of similar soil, and when more advanced pot them singly in 4 inch pots, using soil a trifle less sandy. They should be grown in shallow frames facing the north, and if so situated that the sun shines on them in the middle of the day, they must be slightly shaded. Give plenty of air, and never allow them to become dry.

When well established with roots, shift into 6-inch pots, which should be liberally supplied with manure-water as they get filled with roots.

Cinerarias are quick-growing and free-rooting plants, and if the roots are once allowed to become matted or in any way pot-bound, they cannot afterwards be got to move freely.

In winter they should be removed to a pit or house where a little heat can be supplied. They should stand on a moist bottom, and be sheltered from cold draughts.

When the flowering stems appear, give manure-water every alternate watering.

Cinerarias are very subject to the attack of green-fly, which attacks the undersides of the lower leaves. Immersion of the lower part of the plant in tobacco-water is the most expeditious way of dealing with this pest.

Red-spider and thrips are also trouble-

some sometimes, but not to any appreciable extent if the cultivation is as above advised.

A New Golden Bedding Rose.

Through the courtesy of my friend M. Pernet-Ducher, writes a correspondent to the 'The Garden' (England), of Nov. 13 1909, I was able to inspect some blooms of his marvellous new golden Rose Rayon d'Or. Instead of being a golden ray it is a veritable flood of gold, and will supply a long-felt want to those who employ the delightful Hybrid Teas for bedding purposes. On opening the box of blooms the first exclamation was 'What a glorious colour!' I at once compared Rayon d'Or to the rich golden, erratic variety Gorges Schwartz, but found this latter of quite a pale primrose yellow, so different to its summer colour. There was no Rose in my large collection of such a rich, pure yellow. It reminded me of Marechal Niel and Persian Yellow, or what might be termed yellow Broom colour. M. Pernet-Ducher informs me it is another of the Rosa pernetina hybrids, and it certainly is a triumph for this most successful hybridist. To have beds of Roses of such a colour as this in October will give a wonderful brightness to our autumnal displays. The bloom is not too full, so that it opens freely in all weathers and the buds are prettily splashed with red on the outer petals. One can perceive its relationship to Soleil d'Or or its offspring in the tiny hairy prickles on the flower stalk, so distinct in the Lyon Rose.

The growth is good, of dwarf habit, in the way of Le Progrès and being so free and continuous in its flowering, producing its blooms in twos and threes, it cannot fail to make an effective bedder. The beautiful dark olive green foliage is absolutely immune from attacks of mildew—this in itself a glorious boon—and it also has a sweet fragrance. My only regret is that we cannot possess Rayon d'Or until the autumn of 1910, for it is certainly the long-desired true yellow bedding Rose.

"Delicata," a New, Hardy Border Pink

Delicata is the outcome of the endeavor of Paul Schwarze of Nozzen, Saxony, to produce an early white, large-flowered feathery pink. It is a cross between Diamond and Rose de Mai; its color and early flowering tendency is derived from the latter though it is an improvement on it in color; from Diamond it has inherited its shape and habit. Its color is a lovely velvety light pink tinged with lilac, Cattleya color, a shade that will be found useful for many purposes of decoration. The flowers are borne singly on stems 15 to 18 in. long. In its free blooming qualities it approaches Mrs. Sinkins and Her Majesty, although it is from one to two weeks earlier than either of them. Under glass it will come into flower two weeks sooner, and each separate flower is then sure to develop, and while the color will be somewhat less brilliant it is none the less lovely. Delicata proved entirely hardy last Winter. Its popularity may be understood from the fact that the firm of Otto Mann of Leipzig, who obtained the sole rights of sale, disposed in the first year of about 20,000 cuttings with but little advertising.

—Moeller's Gaertner-Zeitung.

New Pelargoniums.

New Pelargonium Bornemann's Beste.—This is a novelty originated by the specialist Bornemann of Blankenburg in the Harz, Germany, and is considered to be not only the best among the Pelargoniums grown by its originator, as the name implies, but also a noteworthy addition to Pelargoniums in general. The colour is an unusually bright cinnabar red. The blossoms also are unusual in size, nearly 2 inches in diameter, single, and almost circular in shape, clustered in large thick trusses. It is a very free bloomer. A cross of the well-known Reformatör and Waberlohe, another orange colored creation of Bornemann's, it is stout and low in growth, and begins to branch close



Calceolaria Hybrid Grandiflora.

to the ground, without being trimmed down; as these secondary branches put forth laterally rather than horizontally the plant is especially adapted for bedding. withstands wind and rain as well as any other plant of its kind, as it sheds of itself the faded blossoms it never look withered.

—'Moellers's Deutsche Gaertner-Zeitung

Calceolarias.

These showy and free-blooming plants are raised annually from seed sown in the early months of the year in pans of loam, leaf-mould, and sand, which should be sifted finely on the surface. The seed,

being so very small, should be only slightly covered, and the pans placed in a cool shady frame and kept moderately moist. Their treatment throughout differs very slightly from that of the Cineraria, though when grown up they require more root room, and must be kept cool and moist through the winter, though safe from frost.

Free drainage and careful watering are essential points in their culture, as also is shade from hot sun in the spring. They require plenty of light and air, but no draughts.

Green-fly in their early stages must be expected and dealt with promptly.

The above remarks apply to the

herbaceous variety; there is, however, a shrubby kind, which is increased by cuttings taken in the autumn. These cuttings succeed best in a low pit or frame in a soil of sandy loam. Keep them moist and rather close at first, but admit air freely in the spring when growth commences.

About October a number of the best should be potted and taken into the greenhouse, and, when rooted, given plenty of water and liquid manure.

Shade and ventilation are both very necessary, and the plants should be syringed freely and frequently in hot weather.

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GARDENING FOR PROFIT.**Words of Advice from an
English Exchange.**

From time to time letters reach us from persons of both sexes who are seeking information as to the best means of commencing one or more branches of gardening with a view to gaining a living thereby and during the last few years such letters have increased in numbers considerably. Generally, the writers are evidently keen business people who have managed to save a few hundred pounds in whatever branch of business they may have been trained to, and who, apparently, are possessed of a desire to lead an open air life. So far the idea is an excellent one; but we need scarcely say that such enthusiasts have never stopped to consider what it means. That a keen business man or woman in some other walk of life should imagine that they can transfer their energies, say, from a grocer's business to that of gardening, of which they are totally ignorant, seems incredulous; yet such is a fact.

Undoubtedly that many erroneous and misleading articles written by theorists in the daily Press on the subject during recent years are largely responsible for this desire on the part of many townfolk to get their living direct from the land, and we fear that many who have plunged recklessly into some branch of gardening have suffered very considerably. Judging by the letters we receive, the writers have no idea as to what they shall grow or where they shall grow it, and imagine that they only have to dig and plant and Nature will do the rest. How wide this is of the truth all practical men and women will know only too well. It should be sufficient to cause these enthusiasts to seriously consider the matter when we say that we know many hard-working men and women who have devoted their lives, and in some cases long lives, to gardening for profit, and who find it a hard struggle to make both ends meet.

Even with the above facts before them, there are still some novices who are willing to venture in the subject, and it may, perhaps, be of service to point out a few of the difficulties that are likely to be encountered and some of the objects that must be considered. In the first place, capital is absolutely essential, that is,

sufficient capital to carry on the work for several years and also to enable the cultivator to live, as returns of any substantial nature cannot be expected for a few years, no matter what crops are grown, as expenses at the commencement must of necessity be heavier than they will be in later years. Another point that we would like to impress upon the town dweller who wishes to garden for profit is the long hours of hard work that it will be necessary to put into the business. Up with the lark may sound an alluring prospect during the summer months when skies are blue and Nature is at her best, but the late autumn, winter and early spring months must also be remembered.

We referred previously to the novice's idea that it is only delving and planting that needs to be done and Nature will do the rest, but practical men and women know that Nature is usually apparently trying to do her worst. Frost, cold and boisterous winds, excessive drought or rain, hail, fungoid and insect pests galore, all combine to make the market-gardener's life anything but a bed of Roses.

Assuming that the novice still wishes to embark in the enterprise of profit gardening, there are a few hints that may be given, and which will apply to all. We mentioned before that usually such persons as we have in mind have no idea as to what to grow or where to grow it, and this undoubtedly is a great stumbling block. For a novice to think of growing produce for the London markets is absurd, and may be dismissed without further thought. What should be done is to find out what is really required in a locality and try to grow produce that will meet this demand. Generally speaking, better prices can be obtained from provincial towns than in the London markets, and providing the novice has a real love of the work, and is prepared to put several years into it before getting other returns than practical experience, it may be possible to make it pay.

Apart from ordinary gardening, we frequently have enquiries respecting the so called French system of gardening, which, as many of our readers well know, has been carried on by our best gardeners for many years. In this, again, the daily Press has much to answer for in inducing people to invest their money in such businesses without securing sound advice upon, and practical experience of, the subject. In considering the advisability

of commencing this form of gardening, even experienced men and women must ask themselves whether there is sufficient demand to meet the demand, and this is the experience of several who daily have their finger on the pulse of the market. Providing, however, the intending intensive cultivator has convinced himself or herself that there is sufficient demand in the country for such produce as to render the venture a successful one. We think that at present sufficient is being grown to meet the demand for produce of this kind, they are at once faced with the enormous expense of commencing the work. Frames, cloches manure, mats, baskets and a host of other apparatus has to be purchased. Again to compare the intensive cultivation of France with the same in this country is, to say the least of it, misleading. The French are notoriously a salad eating nation, which, during cold weather, we are not (and salads form some of the principal crops); the climate of France is more favorable to the work, labor is cheaper there than here, and workmen will work more hours in a day there than they can be induced to do in this country.

Gardening for pleasure and gardening for a living are two widely different things. It is just as ridiculous for, say, a grocer, draper, stockbroker or clerk to imagine that he can get a living at gardening without previous experience as it would be for a lifelong gardener to attempt to get his living from one of the sources mentioned above.

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A New Double Aster.

Aster Beauty of Colwall is a splendid addition to the list of hardy plants for cutting. It is being distributed by Thos. S. Ware, Ltd., of Feltham, Middlesex. The flowers are perfectly double and are produced in the greatest profusion on stout erect stems, about 4 ft. high. The color of the flowers is a clear lavender and very pleasing. The plant is perfectly hardy and the stems are stiff enough to stand alone without any staking or tying; besides this, it has been found to be extremely free in growth. The first class certificate of the Royal Hort. Society, was given it when it was examined by the floral committee, growing in the R. H. S. garden at Bisley, and the gardening press is unanimous in its praise of the first double 'Michaelmas Daisy.' We venture to predict for this handsome perennial a hearty welcome from hardy plant lovers, and cut flower growers on both sides of the Atlantic.

—'Journal of Agriculture' (Eng.)

The New Hybrid Rose, Kaiser Wilhelm II.

This novelty is designated as the best among the dark red Tea hybrids. It is a seedling cross of Kaiserin Auguste Victoria and Van Houtte, originated by the well-known rosarian, Nicola Weller of Trier-Pallien, Germany. Its color schemes, changing as the light falls upon it, are magnificent, playing between carmine, bright red, dark blood red, and velvety black with bluish tinge. The soft velvety sheen on all the petals is especially lovely. The plant is bushy, much branched and erect in habit; the foliage is dark green and full. It is free from disease, and very hardy. The buds are first shaped like an elongated cone, which changes to cup shape as they open; the flowers are double, large and well formed. It is a free bloomer and color proof against cold or heat; the cut flower also keeps fresh an unusually long time, making it a valuable acquisition to the florist. It has a very delicate centifolia perfume. It is one of the best Remontants, well adapted for cutting, forcing or for planting in groups, either with low or high stem. Altogether, it makes a strong bid for popularity, being one of the most noteworthy of the latest novelties.

—'Moellers's Deutsche Gaertner-Zeitung

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About Vegetables.

The Kitchen Garden.

—:o:—

Operations for the Month.

Seeds of any of the following may be sown during this month:—

Beans (French)
Beet (Silver)
Celeraic
Celery (Red and White)
Cress
Mustard
Onions (for Salad)
Radish
Rape
Scotch Kale
Spinach (New Zealand)

And for Early Planting:—

Broccoli
Brussels Sprouts
Cabbage
Cauliflower

— Watering and Mulching. —

The present month is generally exceedingly trying both to the vegetable and its grower. The principal operation is watering, continual and regular watering to sustain a free quick growth in the plants, and not to allow them to flag or droop for a single moment. The advantage of well enriched, well mulched beds will be very obvious, considerably lightening the labor of cultivation and materially affecting the results.

— Weeding and Hosing. —

Weeds must be kept in check, all exhausted crops and remains of plants should be removed to the rubbish heap, and beds lately occupied kept lightly hoed or the soil renewed and well enriched ready for another planting.

— The Celery Trenches. —

Celery trenches must have copious supplies of water and liquid manure. Additional trenches can be prepared either for a fresh sowing or the reception of young plants.

— Attention to Seedlings. —

The seedlings from recent sowings

should be carefully thinned to allow each little plant ample room to develop itself. Carrots, turnips, parsnips, and lettuce should all be thus dealt with. Water before thinning, and again after, to prevent disturbance of the roots.

— Melons, Cucumbers, &c. —

Give plenty of water and liquid manure to melons while the fruit is growing and swelling, but lessen the supplies as they begin to show signs of ripening. Melons require to be artificially fertilised when in flower. Cucumbers, marrows, and pumpkins want even more abundant supplies of water. All this family is benefited by having their growth regulated, stopped, and thinned. Pinch the fruit-bearing shoots a joint or so beyond the fruit, and in the case of a heavy crop of melons thin out the fruit. Cut marrows and cucumbers when they have attained about half their normal size. The flavor is incomparably superior at this stage.

— A Spinach Tip. —

If you like spinach, try the New Zealand, a hardy variety which grows the whole season through, and is capable of doing good work while the majority of the kitchen garden plants are held up by the heat. Seed of this variety must be soaked in hot water before being sown. The casing is too hard for quick germination if the soaking is not done. Place the seedling plants 15 inches apart. The midrib must be taken out of the leaves before the cooking.

— The Tomatoes. —

Keep the soil moist round tomatoes, never allowing it to entirely dry out. See that the plants are firmly secured to the supports, and pinch out the laterals as they appear. When they blossom is the time to increase the crop by artificial fertilization. Many growers do this by shaking the supports in the middle of the day, thus causing a distribution of the pollen, but a surer method is to brush the anthers lightly, so that it is wafted about by the breeze.

— Asparagus Beds. —

Do not neglect asparagus beds at this period; it is important to keep up the supplies of water and liquid manure.

Water in the Garden.

In his useful little book, "The A.B.C. of Australian Vegetable Growing," Mr. Herbert J. Rumsey, a practical seedsman and nurseryman, of New South Wales, gives much useful advice on the above subject, from which we extract the following:—

Out of every hundred pounds of green vegetables taken from the garden no less than from 70 to 95 pounds is water. The following percentages of moisture are taken from reliable authorities by Professor Massey:—

Artichokes, 80 per cent.

Beets, 88

Carrots, 89.79

Cabbages, 90.52

Celery, 84.10

Cucumber, 95.99

Lettuce, 91

Onion, 87.55

Parsnip, 83.20

Potato, 79.75

Peas, 12.62

Pumpkin, 92.27

Radish, 93.30

Rhubarb, 91.67

Spinach, 92.42

Sweet Potatoes, 71.26

Tomato, 93.64

Turnip, 89.49

Therefore we require, at any rate, nearly as much water in the soil as the weight of the crop we wish to produce. But very large quantities are also evaporated through the leaves of the plant. It is estimated that plants lose by evaporation from 200 to 1,000 pounds for every pound of dry matter, so that it is probable that to make a 10 pound cabbage we want several hundred pounds of water and one pound of solid plant food; this is quoted to show the immense importance of water to the crop. All the plant foods are absorbed by the fine root hairs dissolved in large quantities of water. It is therefore essential that this water must be supplied in some way or other. There are very few localities in which the rainfall during the year would not be sufficient for gardening purposes if it were to fall just when it was

required, but cases are very rare where it is sufficiently reasonable to give maximum results at all times; so that it behoves us to make provision for saving some of the water from a time of plenty for a dry season, or to make use of water that is being collected naturally at a distance, or over a large area, and brought within our reach by rivers, creeks or springs, or artificially by irrigation channels, bores, or city water pipes.

— The Water Can. —

The majority of small gardeners have to rely on the watering can for the application of any water they have to spare for the garden; and I can safely say that there is no greater enemy to a good garden. How frequently we hear gardeners remark that although they have watered every night their garden looks worse than a neighbor's who has no water to use. This can be very easily remedied, and as easily explained. Most of you have seen a pump that has been allowed to run dry; the handle may be worked up and down until doomsday without lowering the water in the well an inch. But pour a drop of water in the top to wet the valve and assist it to act and the water can be pumped up until the well is dry. The soil of the garden when loose on the surface will not allow the sun, which acts as a pump, to get a start on the water in the soil, but the fine streams from the rose of the watering-can settle the soil down and leave the surface compact, so that when the sun gets to work next morning it not only evaporates the water that was placed there the previous night, but any more that was within reach, and by 4 o'clock the soil will be found to be bone-dry to a depth of several inches.

— How to Apply the Water. —

First, do not water every night. If you have sufficient water at your disposal to do so, divide the garden into six portions and give six times as much to each once a week.

Second, do not water on the surface; make holes in the ground with hoe or spade near the plants to be watered and fill them with water from the spout of the can without the rose; keep pouring

it in as it soaks away, until your water supply or patience is exhausted. When it has soaked away, and not till then, fill the hole up again with the soil. With this plan you can use any waste water, such as soap suds on washing day, etc., that would not go through the rose of the watering can without causing a stoppage. Liquid manure can be used in this way also. But let your chief care be to hide all traces of the water when finished. I have used this method for putting out tomato plants and keeping them growing during a drought, when neighbors who had plenty of water could not get their plants along. Sometimes it is necessary to use the rose on the watering-can to water a bed of seedlings, but if so the surface should be mulched with manure, straw or leaves to prevent evaporation.

— Local Irrigation. —

The following method is sometimes adopted here. A flowerpot or jam tin with holes in the bottom is buried to the rim next to the plant to be watered, and filled with pebbles or other rubbish. Water or weak liquid manure may be poured in these at any time, but if soap-suds or water with solid matter in it is used the pots should be removed as often as it is found that the water does not soak away quickly.

— The Sprinkler. —

Where there is a good supply of water laid on, the revolving sprinkler is often used, but, like the watercan, it frequently does more harm than good, and never (except, perhaps, on grass lawns or where there are beds of vegetables with sufficiently dense foliage to shelter the ground) with results commensurate with the water used.

If the sprinkler is used at night, get out after it in the early morning and chip the surface with the hoe to loosen it and prevent more than surface evaporation. But let your motto be 'Get the water out of sight.' If you have got a well-drained, open sand so loose that to jump across a ditch on to the garden would let you down over your boot tops, such as I have seen at Botany and other market gardens, you can turn the hose

on and as soon as the water stops running it is out of sight; it can do no harm there, but there are not many gardens in such soil as that.

— Sub-soil Irrigation. —

Wonderful results can be obtained by laying rows of $1\frac{1}{2}$ -inch drain tiles about 9 inches to a foot deep under the beds in such a way that a supply of water can be turned into them at frequent intervals.

— Surface Irrigation. —

The first essential for an irrigated farm or garden is good drainage. Frequently the land, especially in districts with a poor rainfall, is heavily charged with various salts which, unless they can go downwards with the water, will gradually accumulate near the surface until strong enough to destroy vegetation. Drain thoroughly and even if the water itself contains a small amount of salts in solution it is not likely to do much damage, especially where there is an occasional fall of rain to help wash the salts downwards.

The water should be brought to the highest corner of the garden if possible, or a windmill or other pump should be fixed to raise it to that point, with tanks as large as possible to keep the supply going when the pump is not at work.

If the tank is erected pipes should be fixed at convenient places with a short length of detachable hose so that every part of the garden can be reached.

In whatever way the water reaches the garden care must be taken that it is properly applied. As I have said above regarding hand watering, care should be taken to thoroughly soak the soil around the roots of the plants, and when this is completed you should cultivate the surface or apply a mulch to prevent evaporation. If the garden has been well graded before the ground is cultivated, it is an easy matter to run the water anywhere in furrows between the rows of plants.

It is only by practice and careful observation that the amount of water different plants will take can be ascertained, but a thorough soaking at intervals of about a week will generally suffice in land that is at all retentive of moisture.

Cultivation of the Potato

By the Editor of the 'Queensland Agricultural Journal.'

(Continued from last Issue.)

— Cross Fertilisation. —

Mr Findlay, the celebrated raiser of so many new varieties of potatoes, in the course of a lecture before the Glasgow and West of Scotland Agricultural Discussion Society, spoke as follows on cross-fertilising and raising new varieties from seed:

In the first place, I am distinctly of opinion that natural cross-fertilisation never took place in any part of the world in any period of the world's history. The blossom of the potato has a faintly sweet smell, yet it secretes no honey or nectar, and the pollen seems to be a bit too sharp and tasty to suit the palate of even the most voracious insect. In fact, it is highly poisonous, and I daresay that is where their objection comes in. I have seen now and again a bumble bee, no doubt attracted by the sweet smell of the blossom, alight on the edge of the petal, but never saw one explore the bloom, as is their habit where they expect to find either nectar or pollen. As the most casual observer will have noticed, the potato is an early closer, shutting up its blossoms between 2 and 3 o'clock in the afternoon, and, by reason of a certain twisting process, puts it out of the power of any nocturnal moth or other insect to gain access to either nectar or pollen, even though they both were there. In the second place I hold it is utterly impossible for the pollen of one blossom to be wind-borne, and so fertilise another, even on the same plant, one reason being that it is too heavy, and another, and more important one, being that it is a bi-sexual plant. Both the sexual organs are in the same bloom, the anthers or pollen cases being the male parts, and the pistil representing the female. And it further appears to me that, for some reason which I have not been able to discover, the potato

plant is by nature opposed to cross-fertilisation, for, immediately the pollen in the anthers is matured, the bloom twists itself up harder than ever round the pistil, and no longer opens out to greet the sun. The bloom then no longer stands erect on its stem, but begins to hang down, swaying in the breeze. The pollen falls down into the narrow space formed by the twisting of the petals, all around the bulbous point of the pistil. The bloom thus remains for the matter of two days, and then falls off. Strange to say, the pistil only absorbs a very limited portion of the pollen. Yet what is left, so far as I have been able to discover, is perfectly inert. The potato, as I have already said, is, in my opinion, opposed to cross-fertilisation.

— How He Raises from the Seed. —

Continuing, Mr. Findlay said, dealing with his method of working:—First I get a shallow seed pan, such as gardeners use, attend to the drainage, fill it up, or nearly, with well decomposed leaf mould, to which has been added a little fine sand. I take a flat piece of wood, and beat it down fairly firm and level, and sow the seeds thinly and evenly over the flat and firm surface. That done, I take and sift, after adding more sand, some more of this leaf mould. The sifting will remove all grit and stones. Now sprinkle a small portion over the seeds, but see that you do it evenly and not over-thick—as near to an eighth of an inch as you can; give also a slight beat down. If the mould is fairly moist, you need not give any water for at least two days. Set your tray, to be out of the way of mishap, into the sunny corner of a cold frame. Put a piece of old newspaper or other paper over the tray, covering up with a piece of glass. Your great care now is to see that you do not allow the earth or mould to get dry; at the same time you must guard against making it too wet. In a week or ten days your seed should begin to braird. You must then give them more light and air. With average care, in a very short time you will have nice plants. When about an inch high, put them out in small pots

singly. In another three weeks or so, if the weather is suitable, and the season is far enough advanced, plant them out in the open where you mean them to be permanently. After this, your work is all in the ordinary course; only, remember this, you must take care when you harvest them to keep the produce of every plant by itself—I mean those you intend to grow again. Fifty per cent. or more will be no use to go further with; and this 50 per cent left year by year, you if wise, will further reduce, until at the end of four years you have only one or two left as the sole representatives of your labor and care.

(To be Continued.)

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The Orchard.

Notes for the Month.

JANUARY is an exceedingly busy month with the fruitgrower. He is in most cases realising the biggest results of his year's labors. It is a month replete with duties, opportunities, and possibilities.

— Attention to Soil. —

The soil must have increased attention in the matter of hoeing and cultivating as it is much trodden down during the harvesting of the fruit, and the general tendency is to allow it to become dirty and neglected.

— Peaches and Apricots. —

The above fruit will now be yielding crops. Peaches must be ripe but firm before gathering. Apricots if full sized and well colored will ripen after leaving the tree. Both should be handled as little as possible.

— Canning and Sun-drying. —

The canning and sun-drying of the before-mentioned fruits is a profitable way of disposing of them, and tends considerably to ease the market when threatened with a glut. Fruit should be firm, fleshy, and sweet for this purpose. The art of preserving prunes, the drying of peaches and apricots, to say nothing of raisins, currants, and figs, is still in its infancy in this country. notwithstanding climates admirably suited exist in the northern portions of New South Wales, and Victoria and in South Australia generally. Until this industry is thoroughly developed growers will con-

tinue at the mercy of a fluctuating market.

— Grading Stone Fruit. —

Stone fruit intended for the fresh fruit market demand a pretty prompt disposal, as they do not store well. They should be very carefully graded. Honesty is undoubtedly the best policy, and uniformity of size and quality maintained. The lower grades will not thus detract from the value of the high quality fruit, but can be packed separately and offered at a lower rate. Jam factories usually absorb a good deal of the inferior fruit. It may occur to the progressive grower at this season that with improved cultural methods all his fruit might be of the first grade. All stone fruits for transit must be carefully packed in boxes lined with soft paper and relieved of all possible pressure. For canning only fruit of the best quality must be used. The Moor Park apricot can scarcely be improved upon. Those come in towards the end of January, as also do the Williams' Bon Chretien pears, excellent for this purpose. One of the best canning peaches is the Lady Palmerston, which will not be ready until March.

— Appearance Everything. —

Those who grow fruit for commercial purposes cannot be too particular as to the details connected with the appearance of the fruit they offer; appearance counts for so much. The pity is that the large quantity of inferior fruit is out of all proportion to the quantity of really first-class fruits on offer, and all because there is a want of thoroughness in the cultural methods. People attempt more than they can conscientiously accomplish. Liberal supplies of water given at this period will help to swell the fruit of apples and pears.

— Summer Pruning. —

Summer pruning to obtain light wood of a fruiting character may now be done. Apples, pears, apricots, and plums may have the shoots not required for extension pinched or broken beyond the fourth or fifth bud. This should lead to the development of weak side shoots, which will eventually become fruiting spurs. Thin out crowding shoots and spurs and

the leading wood to admit light and air to ensure the proper development and ripening of the fruiting wood, and to keep the trees clean and free from insect pests and disease. Peaches do not require more than a little thinning of their laterals and leading shoots. Gooseberries should be thinned and have their side growths shortened. Black currants only require the old and crowding branches removed. They are not summer pruned. Remove weak and superfluous canes from raspberries, and take care not to injure the young canes when gathering the fruit, as they will be required to furnish future crops. Cultivate all these bush fruits, and encourage them to make a free growth during the summer.

— The Strawberry Beds. —

Thin out strawberry runners, select the best for layering, and have beds or borders deeply trenched for their reception. Keep all strawberry plants well watered, and give liquid manure to those that have recently borne.

— Budding. —

The budding of peach, apricot, cherry, and citrus trees can be proceeded with, although in earlier districts it can be delayed with advantage until the following month.

— Codlin Moth. —

Bandage traps for codlin moth can still be placed on apple trees, while those on the trees should be examined from time to time to destroy the insects concealed in them.

— Attention to Vines. —

Continue to remove all superfluous growth, and see to the fastening of trellis-vines. In anticipation of a heavy crop, the supports should be of sufficient strength. Do not allow more than two or three bunches on a branch to remain, and nip the shoots a joint or so beyond the fruit. Allow the grapes a free current of air and light and warmth without unduly exposing them to the fierce heat. Allow them to be slightly screened by their own leaves without a heavy mass of foliage choking them. If the season should turn cold and wet thin the foliage severely, so that the fruit may benefit by all the warm available. Keep



W. GILL,]

"Deglet Nour" Palms in Fruit, Lake Harry.

[PHOTO.

the soil round vines clean and well weeded. Prune and cultivate to maintain a steady, even temperature. A warm, moist atmosphere and warmth and moisture and sweetness in the soil are ideal conditions for the vine.

Planting Fruit-Trees.

At the Woburn Experimental Fruit Farm (England), the director, Mr. S. A. Pickering, has carried out some experiments in the planting out of fruit-trees the results of which are rather startling. The purpose of the experiments was to determine whether it is right, in planting out fruit-trees, to dig a broad shallow hole and evenly spread the roots out all round the tree, or to make a small hole, double up the roots, and stick the tree in; then throw in the soil and ram it as hard as if one were putting in agate-post.

The experiments were carried out, not only at Woburn, where the Duke of Bedford carries out much valuable and exact experiment work, but at Harpenden, Bedford and other various places in Cambridgeshire, and in Devonshire. Fifty-nine per cent. of the set showed in favor of ramming, 27 per cent. showed no difference (*i.e.*, all the elaborate detail of the ordinary way of planting was simply a waste of time), and only 14 per cent. were against ramming.

Mr. E. J. Russell, writing in 'Nature,' says:—'It makes no difference by what criterion the trees are judged; planting in this new way gives better results than planting in the orthodox fashion';—which, of course, remains to be seen. But in the transplantation of trees, the orchardist in Great Britain can successfully do things that would mean utter failure in Australia. Generally speaking, the trees used for planting out are of several years growth, and are great

lunky trees. The moisture of soil and air, however seems to help them to recover and establish themselves. In beautifying the grounds of the Franco-British Exhibition, all sorts of deciduous ornamental trees, up to 3 or 4 inches diameter and 20 feet in height, were set out in small holes sunk in stiff clay, and it was amazing to observe how they flourished.

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Verrucosis of Lemon and Other Citrus Trees.

[By T. W. Kirk, F.L.S. &c., Lond., Government Biologist, in Leaflets for Gardeners and Fruitgrowers, No. 33, issued by the New Zealand Department of Agriculture.]

This disease is prevalent in America (principally in Florida), Japan, and Australia. It is not at all an uncommon thing to find lemons attacked by this fungus in boxes of fruit imported from the Commonwealth. On my visit to Queensland in 1898 I saw trees suffering from verrucosis, and since that date the disease has been steadily increasing in the Australian States. This disease has not as yet got a strong hold on the citrus orchards of the Dominion, but no steps should be neglected to eradicate it, as it is a very serious trouble.

Verrucosis is caused by certain microscopic fungi belonging to the genus

Cladosporium, which produce the warty swellings on fruit and leaf. The disfigurement frequently becomes so great as to enormously depreciate the value of the fruit, often rendering it unsaleable, besides dilapidating the trees by damaging the foliage.

This disease is much worse in moist than in dry climates, hence California is practically free, although verrucosis has several times been introduced, while in Florida the loss is estimated at over £12,000 per annum. Should it ever obtain a firm footing in the citrus orchards of the northern portions of New Zealand, the humid climate will probably prove favorable to its rapid spread. The disease having once been found, the importance of keeping a sharp look-out should need no urging.

—Treatment.—

Carefully remove and burn all affected fruits. All the trees should be sprayed with either Bordeaux mixture or ammoniacal carbonate of copper several times during the year. If the spraying is to be

done about the time of marketing of the fruit the carbonate-of-copper wash is preferable to the Bordeaux, but at other times the Bordeaux mixture is to be preferred, as it is as effective and much cheaper than ammoniacal carbonate of copper. In moist seasons more sprayings will be necessary than in dry ones.

The following are directions for making Bordeaux mixture and ammoniacal carbonate of copper:—

Bordeaux Mixture (Summer Formula).

Proportions.—4lb sulphate copper, 4lb fresh roche lime, 40 gallons water.

Preparation.—Dissolve the 4lb sulphate of copper in 20 gallons water; slake the 4lb lime slowly, and make up to 20 gallons: strain this milk of lime into the solution of sulphate of copper, stirring briskly.

Sulphate of copper may be dissolved by tying in a piece of sacking and suspending overnight just below the surface of the water, or by using hot water.

Vessels of wood or earthenware should be used.

Soda Bordeaux is prepared in the same way as lime Bordeaux, with the exception that 1½ lb of washing-soda is substituted for each 1 lb of lime.

— Test for Bluestone. —

It is essential that the bluestone used for spraying should be pure. The following is a simple method of testing for purity: Take a very small piece of bluestone, crush it to powder, place in a cup, and dissolve in a little boiling water; then pour into a glass, and add small quantities of strong ammonia, drop by drop. This will cause the formation of light-colored blue clouds in the liquid. Continue adding ammonia, when the clouds will disappear, and the liquid become thin, and change to rich blue. If, on standing, a brown sediment shows, it is proof of the presence of iron. If, on the ammonia being added, the liquid, instead of showing blue clouds, becomes brown-black and repulsive-looking, it shows the presence of large quantities of iron, and should not be used.

— Test to determine whether sufficient Milk of Lime has been added to the Bordeaux Mixture. —

Procure from a chemist a small quantity of saturated solution of ferro-cyanide of potash. To test, place a small quantity of the Bordeaux mixture, after thoroughly stirring, in a saucer, and add a few drops of the ferro-cyanide. If sufficient lime has been added no discoloration will appear, but if insufficient a deep dark-brown color will be produced.

— Carbonate of Copper Solution. —

Procure a tub or barrel, and in this dissolve 6 lb of copper-sulphate or bluestone, in 4 or 5 gallons of water. In another vessel dissolve 7 lb of washing or sal-soda, using hot water for the purpose. When the solution is cool pour it slowly into the vessel containing the copper-sulphate liquid, stir the mixture thoroughly, then allow it to stand 24 hours. Now siphon off the clear liquid, and allow the sediment, which is carbonate of copper, to stand for a day or two, until it becomes pasty. For every

7 oz. of this paste add 3 pints of strong ammonia-water (which may be bought of any chemist), or enough to dissolve the sediment. The liquid thus obtained is concentrated ammoniacal solution. To prepare it for spraying it is only necessary to dilute each three pints with 45 gallons of water.

In order to avoid staining the fruit, &c., do not use more strong ammonia than is absolutely necessary to dissolve the carbonate of copper.

The powder of carbonate of copper can now be purchased from the drug companies, or the ammoniacal carbonate-of-copper solution put up in bottles with instructions ready for diluting to standard strength.

To prepare the powder of carbonate of copper for use, first make 5 oz. into a thin paste, adding a pint and a half of water, then add slowly 3 pints of strong aqua ammonia, and thoroughly stir until a clear, deep solution is obtained, when dilute with water to 45 gallons

Summer Pruning.

Disbudding and pinching back shoots, so as to further strengthen and shape the trees and vines, should now be completed, and the work of summer pruning commenced. 'Summer' or 'Green' pruning is an operation which is not much practised in this State. Generally, the existing opinions on this subject are so vague that, even where it is performed, a small amount of an element of uncertainty is always existent in the mind of the operator. The principal of summer pruning is that the wood growth is reduced, so as to induce increased fruit production for the next season. The unnecessary wood is removed, and the sap is directed into other channels, strengthening and building up weak or immature fruit buds.

Summer pruning is exceptionally advantageous to young or to strong growing trees. Whenever a tree has been heavily pruned during the dormant season, a very fair growth of wood will ensue, and this wood is generally strong. To 'stop' or summer prune this wood

will have a very beneficial effect on the productiveness of the tree. Of course, if the growth be excessive and rank, a judicious selection will need to be retained, and the balance disbudded. The result of summer pruning will be that, wherever the growing shoot or lateral has been severed, the buds below the cut will receive the full benefit of the sap which previously went to nourish the wood which has been removed. If this operation were performed too early, the bud at the point of severance will merely push its way out, and continue the growth. This result is undesirable, as the very object we wish to attain is defeated, the sap being utilized in the production of new wood, and not in the strengthening and enlarging of the fruit buds. Sometimes even this end is desirable, but it is only when the lateral has been of an excessively strong nature, and an extension is desired, though only as a weak growth. Two points to be noted are:—First, the terminal ends of main, secondary and extension limbs should never be cut at summer pruning; secondly, the cut must always be made at a point where a leaf is existent, so that the sap may be furnished and perfected for the whole of the lateral. If the cut be not made at a leaf, the probability is that the tip of the lateral will lose its vitality, and ultimately die, owing to the fact that no foliage exists to draw and perfect sap for its nourishment.

A number of problems in fruit production and tree culture are still awaiting solution, and among these is the question as to the value of summer pruning on those trees which are supposed to be biennial croppers, such as the Rymer apple; or on such trees whose unproductiveness has been charged to the debit account of the stock they are worked upon. It is an accepted fact that unsuitability of stock will result in unproductiveness, but we might pause before we would say that non-production can always be attributed to unsuitable stock. Coe's Golden Drop plum, for example, is a tree that will not bear on an unsuitable stock; but sometimes trees of this variety have only been a partial success as fruit producers, even when on



W. GILL,] Red Gums (*Eucalyptus rostrata*), growing [PHOTO.
by the Spring Creek Weir, near Mount Remarkable,
Willowie Forest.

their supposedly correct stock. In a case like this summer pruning has been known to produce a marked increase of crop.

It should be definitely understood that summer pruning is not suitable for each tree every season. Growers must know their trees individually, and also their individual requirements. A tree should be strong in constitution, and growing strongly as well; and, as a general rule, a weak tree should not be summer pruned. Weak trees may be successfully treated

by hard pruning in winter. A tree that is thriving prosperously, and bearing systematically, needs very little or no summer pruning; while a tree that is growing strongly, is in a good healthy situation, and is yet unfruitful, needs all the attention and consideration that summer pruning can give to it.

The time for summer pruning is a consideration that cannot be settled by any general rule. So much depends on the state of the tree, the condition of the

soil, the dryness or otherwise of the weather, as well as the latitude and situation of the orchard. These and other considerations must be taken into account by the operator. Generally speaking, as has before been stated, it is advisable to perform the operation at a time when the remaining terminal bud will not break out into new growth. From December to February apples and pears may be treated, according to climate and weather conditions. Apricots and peaches need summer pruning much earlier. Some operators have laid it down as a rule that any tree requiring summer pruning may be pruned just before the crop commences to ripen. This, again, may suit some seasons, but not others. To prevent the re-growth of the lateral, it has been recommended to merely fracture the portion to be removed later, and leave it hanging on the tree. This certainly will be effective; but it gives the orchard a very untidy appearance. It also leaves much more work for the pruner in the winter time, and this is one of the things that summer pruning is intended to obviate. A careful study of his varieties, locality, soil, and annual climatic conditions, will very soon give the operator such power over his trees that summer pruning will become a regular part of his orchard routine.

—E. E. Pescott, Principal, School of Horticulture, Burnley, in Victorian 'Journal of Agriculture.'

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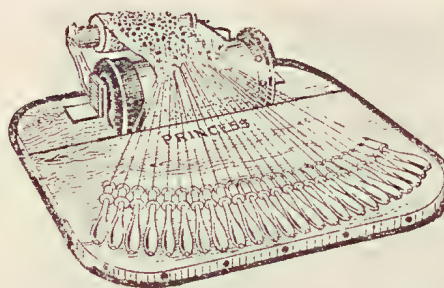
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THE FARM.

Lucerne for Soil Improvement.

Alfalfa (lucerne) is just as important as an improver of the soil as it is as a hay crop. If the farmers of Idaho realised this and managed their crops accordingly they would be vastly more prosperous. The difficulty is not that there is not enough alfalfa grown, but that the farmers are loth to plough it up and introduce some rotation. We find that our soils are very well supplied with the mineral elements essential to plant growth, but are deficient in humas and nitrogen. Fortunate it is that these constituents which are lacking can easily be added by growing alfalfa. Such crops as small grain, potatoes, and sugar beets add scarcely any nitrogen; but, on the other hand, draw upon that contained in the soil. Grain stubble and such portions of those crops as become incorporated into the soil supply humas. Since alfalfa is our chief leguminous crop and can supply the nitrogen which ordinary crops do not add to the soil, its great value for soil improvement may be appreciated. Nitrogen is found in abundance in the air, but ordinary crops cannot take it up and utilise it in its gaseous form. The so-called nitrogen-fixing bacteria which are found in the nodules on alfalfa roots take up atmospheric nitrogen and elaborate it into nitrogenous compounds (protein) which are assimilated and stored up in the leaves and stems of the alfalfa plant. It is this protein which makes alfalfa such a valuable forage. The root growth of the plant and the decay and renewal of tubercles on the roots enriches the soil

with nitrogen. Leaves dropping off also add some. By ploughing under a crop of alfalfa a still greater amount of nitrogen is added to the soil. In these various ways alfalfa enriches the soil.

—Report of University of Idaho Experiment Station.

Cover for Lucerne Hay.

When the farmer considers that a ton of well cured alfalfa (lucerne) hay is worth about as much as a ton of wheat bran, he ought to see that it is profitable to protect it from the rain and dew. He would not hesitate to provide ample covering if he had several tons of bran in the field exposed to the elements. Hay-caps will soon pay for themselves by the finer quality of the hay they assure, aside from the larger quantity of the best grade that their protection guarantees.

The barn is the best place for alfalfa if all conditions are right. Cases of spontaneous combustion in stack and mow make farmers fearful of using the barn, especially for the first cutting, which is always most difficult to cure. There are certain conditions that must be observed if this hay is to complete its curing properly and safely in the mow. The bottom of the mow should be elevated at least a foot from the ground, floored with poles or joists, and they should be about two thirds covered with boards or other material in such a way as to provide numerous openings or air spaces of considerable size. If the mow already has a tight floor, a part of the flooring should be removed before the hay is put in. Then a box or barrel should be placed in the centre of the space and lifted up as the filling proceeds. If the mow is over thirty feet long, a second barrel should be used; that is, an air shaft should be left in about every fifteen to twenty feet. A layer of dry hay or straw sandwiched in about every four or five feet, as the mow fills, can be used to much advantage. If the mow is large enough in length and width, an excellent, safe plan is to spread the first cutting over the entire bottom, filling up to a height of

four or five feet. The second cutting may be placed over this, on top of a layer of straw, and the third cutting over this. There is virtually no danger from spontaneous combustion or from mould if this is done, and the hay will be as bright and green and almost as rich in protein in January as when harvested.

— From Coburn's 'The Book of Alfalfa.'

New Method of Killing Weeds

The problem of weed eradication is one of the most serious which confronts the farmer. During the last few years a method of killing weeds has been discovered which promises greatly to lighten the annual toll which the farmer pays to these pests. This new method consists in spraying the weeds with certain destructive materials known as herbicides. Some of these herbicides, of which iron sulphate is the most promising, will kill nearly all kinds of common weeds without injuring the oats, wheat, or other crop in which they happen to be growing. In fact, in several cases the sprayed grain was thriftier and yielded more than that which did not receive the treatment. This method is especially valuable for destroying mustard in grain fields and dandelions and other weed on lawns.

Bickford's Arsenate of Lead

An infallible insecticide for all leaf-eating insects, including Codlin Moth, Potato Bug, Curculio Beetle, Apple Root Borer, etc.

Does not burn the foliage
Gives rise to no poisonous dust
No danger to the sprayer
Adheres firmly to the leaves
Mixes with water in any proportion

One pound of Paste makes 30 gallons of Spray.

No Lime Required.

Miscellaneous Items.

No amount of work on the soil or in culture will make a good crop of corn unless the seed is good.

† † †

The highest profit to be realised in the production of mutton and wool for the market comes from inducing rapid development.

† † †

There can be no doubt that in the economical production of pork a diet of rape is entitled to a much more general use than it has been given in the past.

† † †

The four corner stones of successful farming are live stock, legumes, crop rotation, and tillage. Upon these a wide system of farming can be built anywhere.

† † †

The best tonic for live stock is plenty of good, wholesome food, pure drinking water, and lots of fresh air; but the air should not come through cracks in the stable.

† † †

Never thatch with straw that has been threshed. Threshed straw is bruised, and not watertight. Rye straw, on account of its length and close texture, makes the best thatch.

† † †

The American consul at Zanzibar declares that soap, spirits, cattle food, unbreakable crockery, linoleum, sugar, paper, and leather can be made from the prickly pear.

† † †

If one has little or no experience in keeping sheep, it will be well to start with a few, and learn from experience, as well as from observation and reading, how to care for them.

† † †

Barley is extensively used as a food for horses in many parts of the world, and it is evident that it has valuable properties from the fact that Arabian horses, which are famous for their speed and endurance, receive practically no other grain food.

The appearance, smell, and color of artificial manures are no guide as to their value, the only true test in buying is chemical analysis, although the best test is made by the crop itself.

† † †

Start early, and keep your stock in first class shape this year. 'An ounce of prevention is worth a pound of cure.' It is much easier to keep out internal parasites than to get them out.

† † †

There is nothing that will keep the cowshed so neat, and at the same time add to the value of the manure pile, as a few shovelfuls of dry earth thrown under the cow. It absorbs the liquid better than anything else, and keeps down any unpleasant odour.

† † †

Never allow a colt to lose its colt flesh. Keep it going right along after weaning, especially up to the age of two years, and as long after as one possibly can, for there is no denying the fact that condition is more than half of the horse at any and all times.

† † †

Success in agriculture, as in almost every other line of endeavour, depends primarily and chiefly upon the man. A good man on a poor farm will often make more than a poor man on a good farm. The value of opportunities depends upon the use made of them.

† † †

Good farming consists, not in growing a slashing big crop once in a while, or even once a year, but in producing a good average of crops year after year, doing it, too, at a profit, without resort to niggardly or slave-driving methods, and without impoverishing the land.

† † †

Salt, sulphur, and charcoal are good things for the brood sow. If kept in a box in the feed lot the sows will help themselves. Boxes may be made with hinge covers that project over the hedges of the box. This will keep out the rain, and the pigs will soon learn to lift the covers.

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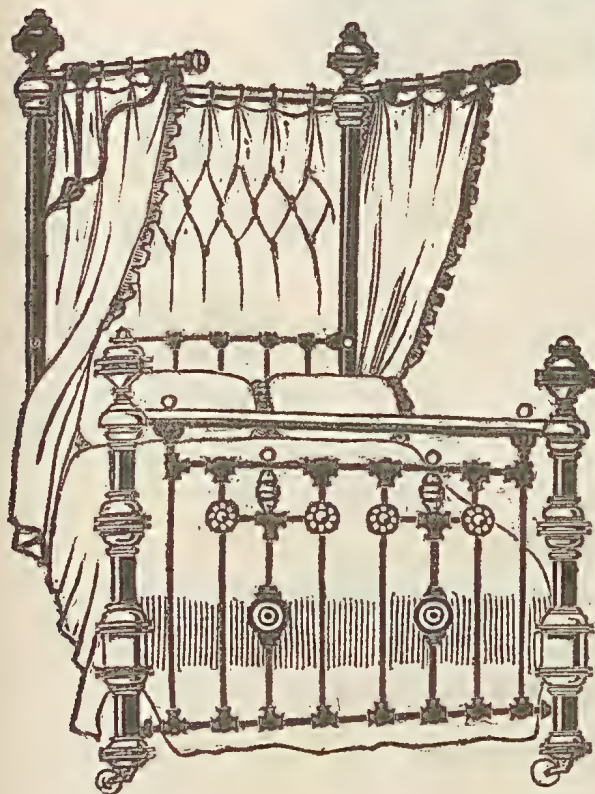
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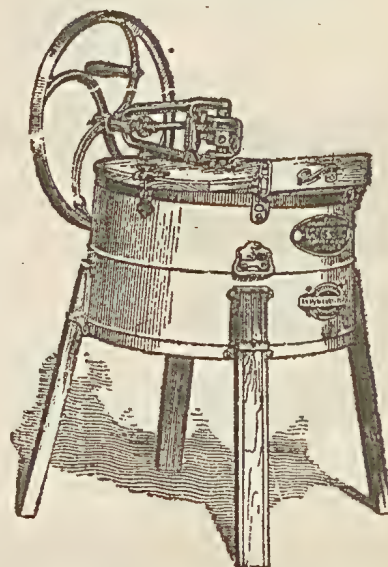


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TYRES.

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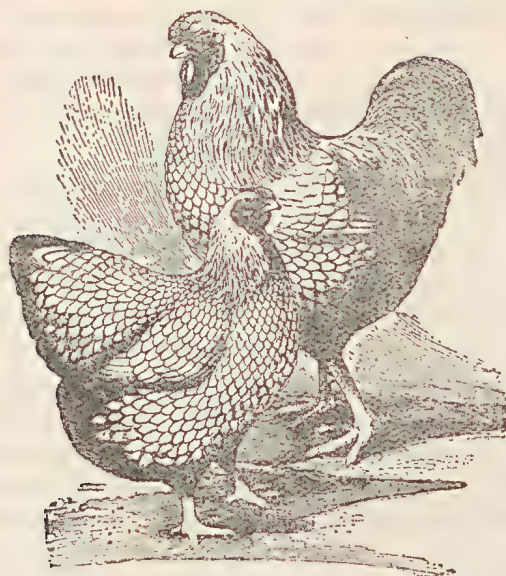


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Poultry-keeping For Profit.

People should be just as careful about going into the poultry business as they would be at engaging any other industry. Do not think it is easy enough to raise chickens, and that anyone can do it. There are, perhaps more failures among those trying to raise poultry on a large scale than in any other branch of farming. Before attempting it, we would advise all to try to gain their first experience at the expense of somebody else. The a position as laborer, or in any capacity, on a poultry-farm before embarking all your own capital. Experiment for a season. You will never regret the experience. If successful, you will have learned much and be able to save money in arranging the place you buy. If successful, you want no more of it. Poultry papers usually publish the successes, but seldom the failures. In this they are misleading. Where most people do and can succeed is in keeping a few hens for the eggs alone. They are fed and cared for better, comparatively, than a large flock, and give better returns. We do not say that it is impossible to succeed on a large scale,

but do say more fail than succeed. Therefore, we urge all to be careful when engaging in raising chickens on a large scale, and try to get experience before investing heavily.

A Great Goose Farm.

Under the above heading the State Agriculture Board of Kansas (America) gives the account of a great fattening farm, operated by C. M. Austin & Co., Mansfield, Mass. The stock handled consists entirely of geese. Geese are there kept by the thousands. There, all the year round, but especially in July or October, may be seen lean geese, fattening geese, fat geese, goslings, and geese beautifully dressed and ready for the market. The account referred to says:—This large, entirely practical plant, handles and fattens between 20,000 and 30,000 geese annually, and supplies a very considerable percentage of the fancy green goslings that bring such high prices on the Boston and New York markets. The goose farm has been established for a number of years, and is doing a successful year-round business. Up to the

present no breeding geese are kept, and the early stages of the business of hatching and growing geese are not done at the Austin Farm. The farm occupies about 125 acres, the greater portion of which is used almost exclusively for goose pasture and fattening pens.

Twice each week, beginning in May or early June, according to the season, specially constructed collecting waggons are sent from this farm 45 miles over the road into the goose section of Rhode Island and South-eastern Massachusetts. The trip into the goose-growing section takes one full day. Men and horses rest up overnight for the next day's work of collecting geese and goslings, which is a house-to-house trip among the farmers raising this toothsome water fowl. The collecting trip occupies one day, while the third day is devoted to the journey back to Austin Farm. Here the geese are carefully sorted and fattened for market. In the fall, when the collecting season is over for New England, this farm receives shipments of geese from Canada by the car load, upwards from a thousand in a shipment. These geese are unloaded in much the same manner as sheep, and are driven from the railway station to the farm.

Both young and old stock are received in these Canadian shipments, and also large numbers of that famous table delicacy known as the 'mongrel' goose. The term mongrel as applied to geese, does not mean the same as when applied to other poultry. The name mongrel, or Rhodes Island Mongrel, is applied exclusively to a hybrid water fowl, produced by crossing wild geese with the common domestic goose of any variety, usually the common farm goose. Many of them are handsome black geese, others of various colors, including the mottled white. The mongrel goose is sterile, being properly a hybrid or a mule. This cross of wild upon the domesticated is highly esteemed by epicures, and is especially grown for the holiday trade, bringing a fancy price.

The farmers growing geese to sell to the collector made a tidy profit, it is said from this branch of their general farming business.

The breeding geese are kept in flocks of from a dozen to a hundred or more, according to the farm or the inclination of the farmer. They are turned out in waste pasture containing a pond or running stream, and fed very little grain.

The breeding geese require no housing and where houses are supplied they prefer to remain out in the open even in the winter weather. The goslings when hatched either under hens or mother geese, are raised almost exclusively on grass pasture or other green forage, fodder corn, or young green rye. After goslings are a few days old they require very little care.

Two or three months are required to rear a gosling to a marketable age, their fair selling price then being from 90 cents to 1 dol. 50 cents at the door by the collector. There also appears to be a market for young newly-hatched, or one-day-old goslings, which sell at 50 cents at the door. although breeding geese are not reproductive until two years old, the birds are profitable until a much longer time than ordinary poultry, the males being good until six or eight years whilst the females breed until 10 years old.

At the Austin farm, in the fattening pens or being prepared for that destination on the pasture land, from 8,000 to 10,000 geese may be found at the height of the season. The fattening pens are supplied with rough board sun-shelters, otherwise no buildings are required for housing the geese. Low rail fences are used for separating the flock, and these are arranged a roadway for convenience in feeding. The pens are about 30ft. square, and accommodate from 30 to 40 geese. With favorable conditions, it requires about three weeks to put the goslings into good condition for market. at which time they should be about 12 weeks old.

The mode of fattening at this farm is to give an abundance of green food to the goslings until within 10 days of killing time. Grain is fed to fattening pens three times daily. Morning and night feeding is of a mash or cornmeal dough, containing meat scraps. This mash is made up wholly of yellow cornmeal

containing about 10 per cent. of best beef scraps. The mash is fed in wooden troughs twice a day.

The killing room on the Ausin farm occupies one of the main buildings and accommodates a number of pickers. The picking or dressing is all done by experts, who receive 11 cents per goose for the operation. The geese are bled by sticking in the mouth, and stunned by clubbing on the head. As a rule, they are exclusively dry-picked, fine down, hairs, and small pin feathers being shaved off by a sharp knife if necessary. The goose-picker sits while at work, holding the bird on his lap, held firmly between his knee and the feather-box is its head. They consider goose-picking is not more difficult than picking ducks, and claim that a goose-picker can comfortably finish off from 30 to 50 geese as a day's work. The geese are cooled off in an ice-water bath, much the same way as are ducks.

'Mongrel' geese receive different treatment. The feathers are removed from their body only by dry-picking. The entire wings are left with their plumage untouched, and it must not be soiled by blood. The neck is picked only a short distance from the body, and tail feathers are left in. This method, it is stated, makes an exceptionally attractive market poultry product.

The geese on the farm are killed, dressed, and shipped to order only. So called 'daily' orders are neatly packed in boxes. 'Freezer' orders are packed in barrels. The most desirable weights for green goslings are 11lb. to 12lb. each. New York prefer heavier weights than Boston markets. The prices for green goslings in the wholesale market at the best season runs from 23 to 25 cents per lb., but these high prices hold but for a few weeks. Later the prices fall to 17 to 19 cents per lb.. The mongrel goose is a fancy article, and brings to 28 cents per lb., with a steady and good demand. The Boston and New York markets take the whole output of the Austin farm.

The soft-geese feathers are saved, and sold to the bedding manufacturers in Boston. The pure white feathers bring the highest prices. They are packed in

sacks, and bring from 30 to 40 cents per lb., and it is stated that three or four adult geese will yield a pound of feathers. There is no demand for quills, and these are not saved.

Old Hens for the Table.

When hens have reach the age of between two and a-half to three years of age it is high time to get rid of them and supply their places with younger birds. What is to be done with them? The accepted opinion is that they are too tough for the table. If, however, they are properly killed and cooked they are perfectly eatable. In the first place, they should be kept without food for a day and a-half when they will keep for long time in cool weather. When drawing them, instead of making a large cut and inserting the whole hand to withdraw the intestines, the plan recommended in an English poultry journal is as follows:—

Lay the fowl breast downwards, pick up the skin on the back of the neck, slip the point of the knife through, and cut towards the head so as to leave a piece of skin about 3 inches long. Fold this back until the neck is bare close up to the body. There is a spot which shows whiter than the red of the neck. Nick on both sides, and the joint will easily break. Put the knife underneath the neck and scrape toward the head, and cut off the skin at the same length as the other, thus leaving two folds to cover the broken joint, so as to hide the red and make the front of the dressed fowl more presentable. Set the bird on its stern, take the crop in the forefingers of the right hand, and work the outer skin away from it all round. A finger inserted into the front cavity will work the crop quite clear, and can then be drawn out. Now take the fowl so that its back lies balanced in the left hand. Insert the middle finger of the right hand, and pass it tightly round so as to break all adhesions and thoroughly loosen all internals from the breast. Turn the fowl over in the hand. The lungs lie in cavities on either side of the backbone.

near the base of the wings. These may be loosened by inserting the end of the finger in the cavities and levering them out. Push the finger in as far as possible make a hook of the end joint, and draw back, pressing close upon the backbone so as to break all attachments.

Now set the bird on its neck end, press the thighs well forward until the feet are at the neck end. Take hold of the rectum with the thumb and forefinger of the left hand, and lift so as to almost take the weight of the bird. Make a slight incision, keeping the edge of the knife up, well toward the tail. Insert a finger and press down tightly along the backbone, so as to detach the large intestine. Then curve the finger and loop up the tail. Now the point of the knife may be placed under it and the rectum cut clean out. As the fowl now lies on its back the gizzard is on the right side. Work a finger round the gizzard and loosen what is call the apron fat. Then if the two thumbs are brought to the front of the gizzard (whilst the hands surround the body) it can be forced out through the small orifice. If the bird is held with one hand and the gizzard steadily pulled with the other, all intestines, heart, liver, and lungs will come out clean, providing the loosening at the front has been properly done, without putting the hand in the bird or making a large unsightly hole.

These fowls should be boiled slowly for 2 hours the day before they are to be served, then allowed to cool in the water, and the next day put on and boiled slowly for 1½ hours. These will be so tender that the flesh will slip off the bones if one is not careful in carving.

An old hen may be made quite tender by boiling it for three or four hours with a couple of good-sized pawpaw leaves.

Our readers are notified by advertisement in another column that the General Income Tax returns are due on or before the 1st February, except those of Farmers only, which are due on or before the 1st May. Fines and Interest will be imposed upon assessment of late returns, and no remissions will be made.

Poultry Brevities.

Keep careful records.

† † †

Capital alone will not do

† † †

Chicken cholera is a dirt disease.

† † †

Lime-white the house frequently.

† † †

Start the year well without drones.

† † †

Are the grit and charcoal boxes full?

† † †

Moulting-time is practically the no-egg season.

† † †

A genuine love for the work is essential to success.

† † †

The successes, not the failures, are what count.

† † †

Daily attention to detail ensures its just reward.

† † †

Clear out your vermin, or they will clear out your poultry.

† † †

Have the quality right, let people know it, and the trade will come.

† † †

The 'rainy day' in the poultry-yard is when the hens begin their annual moult.

† † †

Every week syringe the poultry-house with phenyle and water, or kerosene and soapy water.

† † †

Cleansing operations are not complete if the nests and roosts are not also attended to.

† † †

All excreta, old feathers, and any rubbish should be regularly swept up, and, if possible, burnt.

† † †

It must never for one moment be overlooked that constant attention and care are the price of success.

† † †

A permanent and abundant supply of water is one of the first considerations in starting a poultry plant.

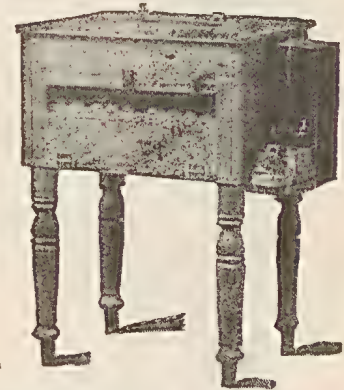
Every detail that saves a minute a day saves six hours a year. And one can do a good deal in six hours.

† † †

Aim to grow at least the whole of your green feed; have plenty of it, as it saves grain and adds to the profits.

† † †

The runs and yards also require sweetening. Live lime-dust and digging the ground over does this effectively.



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The Norwich Canary.

A breeder, in 'Canary and Cage Bird Life,' says :—

If any of your numerous readers are thinking of taking up a fresh variety or of making a start in the fancy, I would advise them to take up the Norwich Canary. It is a very hardy bird, very prolific, and commands a ready sale.

Prices are also remunerative, which is a consideration, especially to the working man, as good birds fetch a good price, and the inferior ones, or wastrels, as they are called, have a ready sale amongst dealers and suchlike as songsters.

Their color, being rich, is attractive to all, which is a great advantage to novices, as it enables them to get rid of their stock which they are not wanting to keep.

A very good way for the novice or anyone who is beginning is to attend the shows, as most of the societies give good classification for these birds, and enter

their birds in these classes, and compare them with those of others, making the show-room, so to speak, their school-room, where they will soon learn the good and bad points of their birds.

Norwich Canaries have three points—shape, quality and color. Shape comes from the hen, so always have the hen as typical as possible, whether yellow or buff, even if a bit of size has to be sacrificed to get it, and see that they are tight in feather. Size and color come from the cock, and it is necessary to see that these two points are prominent, in the cocks, and endeavor to improve each year on the past year's birds.

Then success is bound to crown your efforts in the end.

Feather Plucking.

This is a habit to which Parrots, like other birds kept in confinement, sometimes become addicted, and it is a difficult one to cure. All that can be done is

to pay attention to the diet of the bird, and furnish it with something to occupy its attention, as letting it have a piece of half-rotten wood or even a cotton-reel to nibble at. When wild, many of the Parrot family eat woody fibre, some of them making it a large portion of their diet. One must not give a Parrot food of a too stimulating character, and meat in any form is bad. A suitable diet is freshly-boiled maize, good sound hemp-seed, oats, Canary-seed, buckwheat, and dari, together with green food, such as lettuce, cabbage, and green peas. The too exclusive use of hemp is a mistake, and the 'bread soaked in tea' is altogether wrong. Nothing containing salt must ever be given, but a lump of sugar now and then as a special treat may be supplied. It should not be forgotten that Parrots naturally dust themselves in sand, and require sharp grit to aid in the digestion of their food.

A Bird Tragedy.

Records of the nestlings and even of old birds perishing miserably by becoming entangled in string used by nesting material are not very uncommon. Finches appear to be the greatest sufferers, and the following instance, recorded by Mr. F. Stubbs in 'The Oldham Chronicle' is the only one known to me of a Reed Warbler being trapped in this way. He came upon the nest, which a boisterous wind and waves of the lake swung from side to side until he began to fear for the contents. But it happened to be empty. A nestling was visible on the outside hanging by the neck. He managed to pull the reeds towards the bank, and then discovered what had happened. A long strand of loosely unravelled twine had been woven by the birds into their nest, and in some unaccountable manner an unfeathered youngster had got its neck firmly noosed in a loop of the twine, and was hanging dead by the side of the nest. The other nestlings were missing. Human interference was hardly to be thought of, for the nest was in unbroken reeds growing in a couple of feet of water, and nearly 6 ft. from the bank. He concluded that the little victim had been entangled in the nest, and that its frantic parents, in trying to release it, had accidentally turned out the other nestlings and tipped the noosed one over the edge, there to hang until it died.

About Pigeons:

Seasonable Notes.

We are indebted to J. Noble, in the 'Australian Hen,' for the following useful pigeon chatter:—

Ere this, the fancier should be able to form a fairly good idea as to what progress he has made during the breeding season now nearing the end, most probably he already has his eye on some promising candidates for honors during the coming Show season. The bulk of the remainder are surplus birds, pure and simple, and should be disposed of in any manner which the breeder may consider to the best advantage. Of course, there are instances where the despised and doubtful youngster has developed into a 'topper,' but such instances are remote. Any fancier of experience can pretty safely sum up the points of each bird.

Also some favorite stock birds will have to make room for the 'choicest' of the new generation. Such stock birds may prove valuable as crosses in other studs.

The fancier's aim should be the progress of his stud by building it up with the 'selected' specimens of each season's breeding; yet to avoid over-crowding, as it will assuredly introduce disease; it will also hamper the development of his most valued young birds.

He should be watchful, and severe on the 'late' bred progeny, if they promise to prove weak and weedy. Such as these enter the moulting stage almost immediately they leave the nest. This drain on their already weak system renders them susceptible to diseases such as colds, one-eye cold, roup, and kindred diseases, which they introduce into the aviaries, and much havoc is played among the 'quality' birds ere the trouble is eradicated, not to speak of the danger of losing the 'crack' of the season.

Every fancier, worth calling a fancier, should possess half-a-dozen or a dozen show-pens. They are easily procurable

at about 2/ to 2/6 per pen. These pens are essential in the handling of the entire stud, and are always more or less in use. It may be for the purpose of selecting and mating up the birds before the breeding season, or penning a new purchase, or in the selecting of birds to fulfil orders, in cases of sickness and many other reasons, but most important and indispensable are they in the training of the youngsters intended for exhibition.

Training for the show pen should begin soon after the youngster is well on the wing. It's a good plan to pen a few of the most promising every evening, the fancier will have more leisure to handle them. There must not be any trace of flurry or rough handling, or the penning is best left alone. A few grains of hemp seed, or small quantity of mixed canary seed thrown in quietly in a clean pen, will help to win confidence. The judging stick must be introduced very gently, passing it occasionally over and about the bird, carefully avoid frightening it. A few evenings of this treatment and the 'coming champion' will become quite familiar with its new surroundings and the stick, and will very soon show pleasure in being penned by strutting round and 'playing up' to its adjoining companion. All fear will be lost; instead of huddling in the corner or dashing against the sides of the pen if the stick is introduced, it will stand to attention, displaying its carriage and points to the best advantage.

It's advisable to pen all promising youngsters at every possible opportunity. They become thoroughly trained and at ease in the pen and while in the pen, before removing it to the aviary, an occasional pinch of Epsom salts will tone up the system, cool and purify the blood, and so help the process of moulting.

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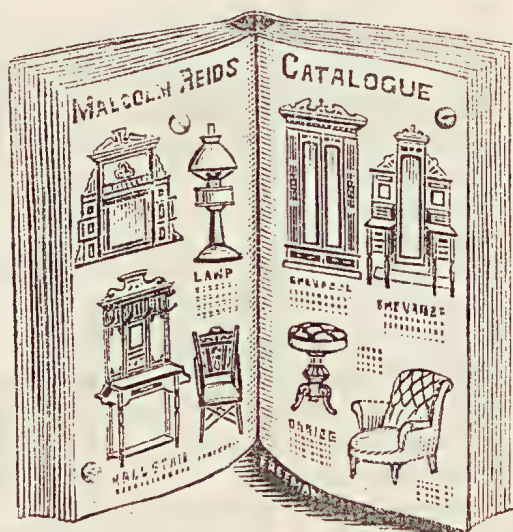
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Cutlery, Crockeryware, Guns, Bicycles, Drays,
Buggies, Harness, and Numerous other House-
hold and Farm Requisites.

WIT AND HUMOR.

None but the brave forswear false hair.

— Our Dramatic Note. —

The lights in a theatre set the men a good example; they seldom go out between the acts.

— Full of Whisky. —

"What was the subject of your debate this evening?"

"Whisky."

"Was it well discussed?"

"Yes. Most of the members were full of the subject."

— Sub Rosa. —

She—"She told me you told her that secret I told you not to tell her."

He—"The mean thing! I told her not to tell you I told her."

She—"I promised her I wouldn't tell you she told me, so don't tell her I told you."

— True. —

"This is our latest novelty," said the manufacturer, proudly. "Good work, isn't it?"

"Not bad," replied the visitor, "but you can't hold a candle to the goods we make."

"Oh! are you in this line too?"

"No. We make gunpowder."

— Loading the Dice. —

Young Wife: "Dear, why are you eating so much more of my cake than usual tonight? Is it nicer than it was last time?"

Young Husband: "I—my darling—I—well, to tell the truth, I bet Tobble five shillings that I weighed more than he did, and we are going to settle it tonight."

— Where He Saw the Time. —

The orator was waxing eloquent, and his delighted audience were hanging upon his words with eager anticipation.

"I've seen the time," he said, "when bread was ninepence a loaf, when sugar was sixpence a pound, and when tea was four shillings a pound. Yes, my friends, I have seen the time when jam was an unknown luxury to the working-man's table. Ay, and I've seen the time when—"

"Ay," broke in a voice from the back of the hall, "and I've seen the time when I've looked at the clock!"

— Shrewd Guide. —

Guide: "This is a dogwood tree."

Stranger: "How can you tell?"

Guide: By its bark."

— Not Over Hasty. —

Old Quiverfull: "And so you want to take our daughter from us? You want to take her from us without a word of warning?"

Young Goslow: "Not at all, sir. If there is anything about her you want to warn me against, I'm willing to listen."

— Logical. —

First Choir Boy: "Which is the more obedient, the church bell or the organ?"

Second Choir Boy: "I don't know. Which?"

First Choir Boy: "The bell because it when it's tolled, but the organ says: 'I'll be blown first!'"

Second Choir Boy: "Thank you so much."

— Not a Miracle. —

Edward: "Have you ever seen a crow flying and a cat sitting on its tail?"

Albert (patiently): "No, Edward. Another of your silly jokes I suppose."

Edward—"Well, but if you look out of the window you may, very likely, see a crow flying, and yonder on the hearthrug behold the cat sitting on its tail."

— Just So —

First Chappie—"I wonder now, Bertie, how the donkey ever came to be used as the emblem of stupidity?"

Second Chappie (with a yawn)—"Don't know, I'm sure, dear boy; must have been before our day."

— The Difference. —

Henry—"James, can you, an intelligent youth, tell me the difference between a gardener, a billiard-marker, a gentleman, and a verger?"

James—"I cannot, Henry; all men are liars—is there any difference?"

Henry—"You shock me. Certainly there is a difference. A gardener minds his peas, a billiard-marker minds his cues, a gentleman minds his p's and q's, and a verger minds his keys and pews."

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The Young Folks.

The Friend of Man : Some uses of the Dog.

(Continued from last issue.)

III.—Watch-Dogs.

A famous traveller, who spent many years in Armenia and Syria, highly praises the dogs of the country. He tells how, upon one occasion, a cur joined his caravan at Trebizond without invitation, and made himself one of the company. He followed the caravan a distance of nearly three hundred miles. The kindness which the dog received from the men of the caravan he repaid by keeping watch over their horses by night.

Mr. Landor, a traveller in Thibet, gives an account of a nearly similar incident. He was awakened one night by the noise of stones being flung at his tent. Going outside, he fired from his gun into the air. This scared away the cowardly Thibetans, who ran off in the dark. A dog however, which had been disturbed by the noise of the stones and the shot of the gun, remained near the tent for the rest of the night. In the morning Mr. Landor petted the strange dog, and gave it something to eat; and from that day it attached itself to him and his servant, and travelled with them wherever they went.

Both these dogs were domesticated animals, but the two incidents show us one way in which wolves or jackals may be tamed, until, little by little, they become useful watch-dogs. If we can imagine a hungry wolf or jackal following a caravan or a wandering tribe for the sake of the waste food left behind, and bringing up its little ones to the same kind of life, we can that in course of time the wolves or jackals would become tamer. They would become less afraid of men, and less disposed to attack them. At the same time, they would be anxious to drive away all other wild animals

which were likely to share their food; and thus by degrees they would become faithful watch-dogs, devoted to their owners, but fierce towards enemies and thieves.

Dogs have long been used for keeping watch. Thousands of years ago the Egyptian boatmen on the Nile took them upon their boats to keep watch while they themselves went on shore. In Eastern countries they have been used for centuries, and are still used, to guard the flocks from the attacks of wild animals. When the Dutch were colonising South Africa, two hundred and fifty years ago, they imported dogs to watch in their settlements, and they found them a very useful protection against the stealthy Hottentots.

Every one knows how cleverly dogs have now been trained to keep watch and guard, and how they can mind their own business in this respect. The dog which is told to watch a coat or an umbrella or a pile of luggage takes little notice of any stranger until he tries to take the object which the dog is guarding, when the latter grows fierce and dangerous. Many yard-dogs will let a stranger enter a yard, but they will on no account let him go out again until their master bids them do so. Nearly every one can recall some incident which shows the sagacity of watch-dogs. One was related in a newspaper many years ago. A horse-stealer broke into a farmer's stable one night, took out a horse, and rode away upon it. Fortunately, the farmer's dog was in the stable at the time, and though it could do nothing to prevent the thief taking the horse, it set off in pursuit of him as soon as he rode off. It followed him closely for about three miles, barking as loudly as it could all the time.

Fearing that the dog's barking might lead to his pursuit and capture, the thief at length dismounted from the horse, turned it loose, and ran away with the blinkers. The dog took no further notice of him, but remained with the horse until they were both found by the owner.

—W. A. Atkinson, in 'The Prize.'

The Idlers.

Bird upon the housetop,
Kitty in the sun,
Think that life's all pleasure,
Frolic, rest, and fun.
Oh, you silly creatures!
You'll find out some day,
When you're old and wiser,
Life is not all play!
Birdie, you'll be building
For yourself a nest;
Then you'll teach your birdlings
Homo, sweet home is best.
P'raps you'll have to feed them;
P'raps you'll have to sing;
P'raps you'll go long journeys
On your little wing.
You, my pretty pussy,
You must catch the mice;
Let the children stroke you,
Always soft and nice.
With some little kitties
Of your own, you'll be,
Oh, so very busy!
Just you wait and see!

Conundrums.

What kind of hen lays the longest?
A dead hen.

Why is a dancing master like a tree?
Because of his bows.

Why is the inside of everything so mysterious?
Because we can't make it out.

How much cannibal can a cannibal nibble if a cannibal can nibble cannibal?
Just as much cannibal as a cannibal can nibble if a cannibal can nibble cannibal.

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For the Ladies.

To a Young Lady about to Marry.

When married you are

You must learn to submit

To the whims of a husband,

And if he thinks fit

To go out of an evening

At concert, or play,

At home, by yourself,

Of course, you must stay.

You must never be ill-tempered,

Look sulky, or scold,

For each frown adds a wrinkle,

At least, so we re told.

Be kind and submissive,

Yet cheerful and gay,

Or you'll break the old promise,

Love, honor, obey.

And when he comes home

On a cold winter's night,

Have the hearth neatly swept,

The fire burning bright,

The arm-chair placed ready,

The slippers well aired,

The cloth neatly laid,

And the supper prepared.

Attend to these rules,

And you'll certainly find

Your husband affectionate,

Tender, and kind,

But take this for your comfort,

If he proves the reverse,

He's your husband, remember,

For better or worse.

Water as a Disinfectant.

Pure, fresh, cold water is one of the most valuable disinfectants, inasmuch as it is a powerful absorbent.

Every sick room should have a large vessel of clean water placed near the bed, or even underneath it.

This not only absorbs much of the hurtful vapour, but in its evaporation it softens and tempers the atmosphere, doing away with the dryness which is so trying and depressing to an invalid, or

even to persons in health, for that matter.

It has frequently been shown by actual experiment that troubled sleep and threatened insomnia are corrected by so simple a thing as the placing of an open bowl of water near the sufferer's head.

A Seaside Hair-Curler.

No one is more aware (says an authoritative writer in the 'St. James's Gazette') of the disastrous effect which sea air has on the hair than the woman to whom nature has denied the enviable curl or "kink" in the chevelure, which is such a redeeming feature when winds, waves and sea mists make havoc of the coiffure. Where this is the case the use of a curling fluid is a great help in preventing 'rat-tailed' locks and wisps of hair from giving an unkempt and untidy appearance; and if this is applied before the head is dressed in the morning, and again before the hair is placed in curlers for the night a good result will be obtained.

An excellent home-made lotion can be prepared on such a simple basis as that of gum arabic, sugar and rose water the proportions being two drachms each of the sugar and gum arabic to four ozs, of rose water. The gum should be slowly dissolved in the liquid, and the sugar stirred in last of all, the lotion being then bottled till required, and shaken well before each application.

Women and Men.

A woman uses a glass—sometimes, let us say—to color her face; a man—also sometimes—uses one to color his nose.

If you get up with the lark, go to bed without one.

A woman is never so good to be true.

A swallow of brandy often turns out to be a bird of ill omen.

It's a case of quick consumption with those who bolt their food.

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HOUSEHOLD HINTS

— Lamp Wicks. —

The best way to trim a lamp wick, as everyone knows, is to remove only the charred portion of it without using the scissors. If this is done there will be no danger of the wick being uneven. Lamps in regular use should have the charred part of the wick removed at least three times a week. All lamps should be wiped daily. No burners should be allowed to become encrusted with dust and oil, and they will not get into this condition if they are attended to every day.

* * * * *

— Albert Cake. —

Put $\frac{1}{2}$ lb of butter in a basin, and beat it to a cream with $\frac{1}{4}$ lb of sugar and four whole eggs. When well mixed, stir in lightly, just a little at a time, $\frac{1}{2}$ lb of flour, 6 ozs of sultanas, and $\frac{1}{4}$ lb of candied orange-peel, cut in strips, and a dessertspoonful of baking-powder. Well butter a cake-tin, put in the cake mixture, and bake in a moderately hot oven $1\frac{1}{2}$ hours. Try it with a skewer, thrust through the centre of the cake; if it comes out quite clean the cake may be turned out carefully.

* * * * *

— Fruit in Fevers. —

German physicians make great use of preparations of fruits in fevers, particularly of fruit-soup, which is made by boiling for some time one part of dried fruit of some sort with four or five parts of water. In cases in which considerable gastro-intestinal irritation exists, the soup or decoction thus prepared should be carefully strained, so as thoroughly to remove the skins and all other extraneous matters. The juice of oranges, grapes, raspberries, blackberries, huckleberries, tamarinds, currants, or cranberries may be added to water as a beverage in fevers. Thus used, they not only increase the quantity of water which the patient is enabled to drink, by giving to it a distinct and agreeable flavor, but also aid the elimination of poisons with which the system is struggling, by a slight diuretic action.

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February Number of

1910

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry).

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Blanche Burpee

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Alice Eckford Cupid

A Single Plant of Cupid

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TO ADVERTISERS.—Particulars of rates will be supplied on application. Alterations of advertisements must be in our hands not later than the 20th of the month.

Answers to Correspondents.

CHICKENS WITH CRAMPED LEGS.

M.M., Hindmarsh.—This complaint is very common just now, and it frequently occurs in the summer time. The best known remedy is to rub the shanks and joints with Ellinans Royal Embrocation, as used for horses.

* * * * *

TREE LUCERN.

A.J., Green's Plains West.—It is recommended to sow the seeds of the tree lucern in either spring or autumn. As the seed is very hard, it should be steeped for about twelve hours in hot water. Only a small quantity of seed is required, as the trees should not be closer together than 10ft. If the plant is intended for fodder it should never be permitted to attain the size of a tree. Almost any soil will do, provided it is not wet. Badly-drained soil is not favourable to tree lucern.

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EDITORIAL.

WE heard a man say that given plenty of sunshine and plenty of water he would undertake to grow anything that the earth could produce. That was not an idle boast, because the man had in addition the other necessary auxiliaries of brains and system. Thus it may be understood that the inanimate elements of nature require these animate facilities to bring them to fruition. All such statements may appear commonplace enough, but we fancy that they are not sufficiently recognised by producers as a whole. In demonstration of this one need only look over the fences of two gardens alongside each other and see where brains and system are at work on one side, and on the other where work is carried on without them. We have in mind two orchards adjoining. In one the trees are struggling for an existence under neglected conditions. The trees make a game struggle of it in putting forth their leaves in the Spring, and without any help from the master mind which should assist their efforts, make some show of life. Next comes the bloom, and in due season the fruit, but with them also come the diseases of various kinds unchecked, and pests as vigorous as the leaves and bloom and fruit. They all grow together, but the husbandman looks only at the fruit, and when the consumers will only buy at a starvation price he sits down and curses what he miscalls his luck. The proper name is neglect through the lack of brains or the idleness to use what little he has.

On the other side of the fence,

under the same influence of land and atmospheric conditions you see the trees smiling with a vigor that is refreshing. The land has been well cultivated, the trees pruned of all superfluous growth, sprayed as a preventative against disease. He cleans the land and the trees in the same way that he washes his body to prevent himself being poisoned with dirt and the microbes of disease. The process of washing keeps himself clean and healthy, and his trees are like himself. He looks good and healthy, his trees look the same. He bears good fruit as shown in his bank balance and general demeanour. He does not grizzle at bad luck nor bemoan his lot in life. As the man is so is his business. The one is a reflection of the other. If there is one thing a man should not do it is to grumble at himself. Unfortunately he grumbles at everything but himself, but he should never have cause to do so.

The tidy, industrious brainy man has neither time nor occasion to sit down and grumble at anything or anybody. He is too happy. He works, and watches and thinks—not about himself but about his business. He has the same difficulties to encounter; but he meets them strong and prepared, with the result that what would prove great difficulties to some are only to him incentives to greater strength. Is this ideal moralising? Maybe it is. But the sentiment of it is what makes the difference between struggling for an existence and living a happy wholesome kind of life.

Now the sun is shining strong and hot—and if the trees and plants that are growing and producing

fruit have not been well cared for the produce will be poor and unprofitable. Land well cultivated, trees well provided for, the sun is Nature's element to bring the fruit of labor in just and fair proportion.

If we look at a ship upon the sea and think what a wonderful creation of man's genius, care, and, calculation it is we say that if the engineers who built it had not carefully planned every detail in the material of which it is made, in the methods under which the materials had to be put together, and the fashioning of it, the ship would not float, and if it did the storm would wreck it. Now if we compare the building of a ship to the making of an orchard or garden or farm or sheep-run, we quickly see that the fault in failure is not with the raw materials so much as the engineer—or producer.

Thus we now come back to our friend who says that with sunshine and water he can grow anything. And we repeat, so he can, provided he has the brains and system. While these are being freely and properly utilized he has no fear of the results.

Received.

SUTTON'S AMATEUR GUIDE IN HORTICULTURE FOR 1910.—By the last mail from England we have received the above mentioned publication, and we cannot pass over the receipt of same without congratulating Messrs Sutton & Sons upon their production, which is a masterpiece as regards seedsman's catalogues. In addition to instructions for the cultivation of vegetables and flowers it contains no less than 269 illustrations, produced in a most realistic manner, many of which are worked in various colors. Some idea of the immensity of Sutton & Sons' business may be gathered by the fact that during the summer of 1909 this firm had over four miles of Sweet Peas alone under comparative trial at their Experimental Grounds, near Reading, which comprised 1,285 varieties and selections,

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A View of the Main Rosery at Dr. Poole's Residence.

The Flower Garden.

Notes for the Month.

— A Useful Tip. —

With an increase of bloom there also comes an increase of duties and responsibilities. Every flowering subject and foliage plant in the garden must have its attractive appearance maintained by various attention in the matter of removing dying, and no longer ornamental blooms, and withered leaves. If this simple little office is performed regularly the garden will continue to smile all the longer and more radiantly for it.

— Watering, etc. —

Should February prove unkind in the matter of weather, watering and feeding with liquid manure must be continued with great zest to ensure a continuity of bloom. Having soaked the soil through and through the moisture must be conserved by cultivation.

— Transplanting. —

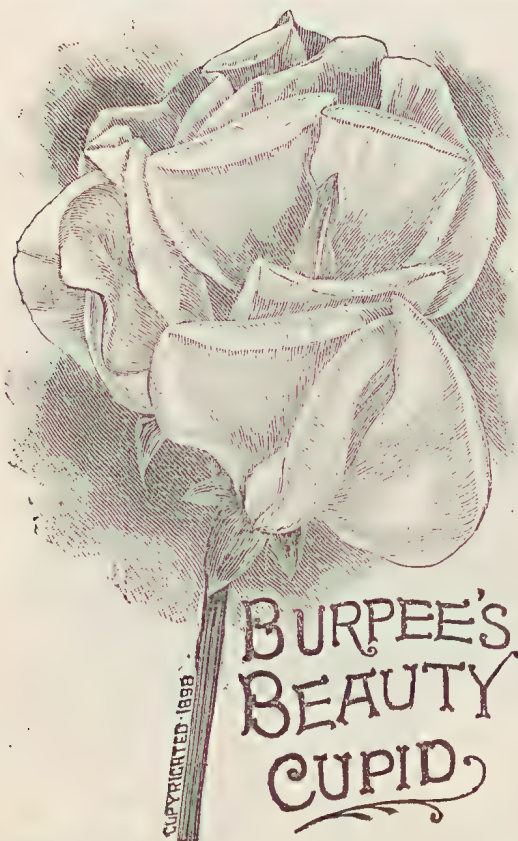
There may be occasional need to draw

on the reserve plants in order to fill up gaps in order to supplant failures in the border. Let these be planted without delay and encouraged by every means to make a quick growth and showy appearance. Where there is any jarring effect of unfortunate combinations it is even possible with a great amount of care to transplant at this season, always choosing a cool cloudy day, or the evening for the purpose. Water the subject, not immediately, but a few hours before transplanting, so that the soil particles are sufficiently adherent to form a solid ball round the roots. Give a good soaking again after transference has been effected and afford a shade from the sun until the plant has become thoroughly established.

— Dahlias. —

Dahlias are undeniably one of the principal floral features of the season, and should be present in every garden where conditions permit. The greater the number and variety the better, The dark shades, and crimsons, clarets,

maroons and purple supply a deep rich tone, and form an effective contrast to the bright vivid colours that predominate in most gardens. The light shades and the gleaming whites and brilliant yellows, apricot and amber tints will light up the dullest and most sombre garden in a remarkable manner. Even where a garden is already gay with every conceivable colour of the Nature's inexhaustible palette, they only serve to make it more dazzling more brilliant. As the Dahlia blooms fade, prune back to a strong wood bud. If the plants were stopped at a reasonable height the strength and the energy will be equally distributed, they will ramify in all quarters and will be masses of gorgeous blooms and rich green foliage. It seems as if the special merits of the Yucca family were not sufficiently recognized, judging by its conspicuous absence in so many gardens. Not only has it an extremely ornamental form to recommend it, but variegated tinted, and varied green forms and solid indifference to heat and drought make it a very useful ornament. During the past season they have lit up many a dull aspect with noble spikes of Magnolia tinted blooms. Y. Glucescens, Y. Aloifolia.



GIANT WHITE SWEET PEA,
"BLANCHE BURPEE."

Description of Flowers.

SWEET PEAS.

In this number appears illustrations of a number of the leading varieties of Sweet Pea, a flower much prized by florists for its various and delicate hues. It belongs to the important order of Leguminosæ, so called because nearly all bear pods or legumes. The order comprises some 7,000 species, of which Australia possesses nearly 1,000; it is, in fact, one of our largest natural order. Of the Acacias alone Bentham describes 193 species. The flowers figured belong to the Papilionaceous section, so named from a fancied resemblance of a butterfly. In this section the pollen is shed and stored in the end of the keel, and if a sufficiently heavy insect or bird alights on a part of the flower suitably arranged for it the stamens push out the pollen with a jerk upon the insect or bird, to be

carried to another flower for fertilizing purposes. Although the arrangements seem so well adapted for insect fertilization it is found that this does not commonly occur; perhaps the contrivance was more serviceable in past ages than now. From observations made upon the well known climber *Kennedyia nigricans*, the writer finds that here the fertilization is done by birds. When the pollen is ready the dark inconspicuous flower suddenly opens and discloses two noticeable yellow streaks. If now, pressure is applied in the proper place the pollen is jerked out some inches. The N.Z. *Clanthus* is also bird fertilized.

The pod-bearers are as useful as they are numerous. They serve for food (peas, beans, &c.), for fodder (lucerne), for medicine (senn). They furnish gum (acacia), dyes (log-wood), sweets (liquorice), resin (dragon's blood), and poisons (laburnum). They are also of

service to the farmer in another direction for upon the roots of clover, &c., are found nodules, sometimes as large as a pea, which contain innumerable minute organisms called 'nitrogen-producing bacilli.' It is the action of these that brings about the improvement of land after a crop of peas. Now in England it is known that nitrogen must be added to the soil, but it is found not necessary in the northern areas of this State. Why? Because these bacilli only work in the brief period of warm weather in England, but all the year round here. This is a general statement, for the writer finds that in the Hills nitrogen is still needed, either in the form of nitrate of potash or sulphate of ammonia. Presumably the cold checks the work of the bacilli, although not so much as in England.

— Send along your Views. —

One object of this magazine is not only to communicate and to exchange information, but to incite our readers to observe for themselves. Surely out of the 126 species of the Pea-tribe found in this State there must be many whose



A Field of "Pink Cupid" Dwarf Sweet Peas.

variegated, *Y. Recurva Pendula*, with its variegated strain, are all very attractive specimens.

— Pelargoniums. —

Pelargoniums of various kinds should be cut back, and if such plants were verbenas, petunias, gaillardias, and heliotropes have become a bit shabby or leggy, a pruning back will be of benefit. Alternantheras and iresenes used for ribbon work must be pinched back to keep them dwarf. Too much water must not be given to plants newly cut back.

— Chrysanthemums. —

Chrysanthemums are brittle plants, and unless staked the shoots may be broken off with the wind. Use light stakes of just sufficient length to support branches; very stout and unnecessarily supports are unsightly. Bushiness of habit in these plants should always be aimed at, and it is not too late to pinch out the points of plants that are not wanted to flower early. Water must not be given to prevent the plants from suffering, but an excess of moisture causes soft sappy growth, which should be avoided.

— Cyclamens. —

Now is the time to pot up a nice lot of Cyclamens to brighten our verandahs and

glass houses in the winter. In the plenty of sunshine and bloom of to-day, we must not forget that there are dark ungenial days with which the whirligig of time will revenge us by-and-by. Cyclamens have a peculiar grace and beauty of flower and foliage. Nature has wrought an elaborate design on each leaf an exquisite tones of green. They can be grown also in a border if it is warm and sunny, and protected from frost in the winter, and cool and shady in summer. They ask above all things perfect drainage. They have a preference for a chalky or a sandy soil. A rich sandy loam combined with a little leaf-mould, mortar, and limestone rubbish is very acceptable. Always let the corms appear well above the ground, and avoid watering them when they are at rest. They can be raised easily from seed, or by division of the corms

— Iris Koempferi. —

Iris Koempferi has been flowering gorgeously in many gardens during the past summer months. The magnificent form and rare shades of the blooms and the strong veining of the petals combine to make them conspicuously distinct. This beautiful Japanese variety can be grown quite easily even in the gardens of small pretensions, provided the space

they occupy can be converted into a mild swamp during their period of active growth and efflorescence. Let them therefore surround a water tap from which there is constant drip or dribble of water. The original soil should be taken to a considerable depth and one of a moist humic or a peaty character substituted. This should insure permanent moisture, and thus gratify their semi-aquatic tastes. They must not be protected by tree or in a shady position for they revel in the sunshine always, providing their roots are kept cool and moist. They can be raised from a seed but substantial divisions of the root stock planted in the Autumn is the surest way for a start.

— Cuttings. —

Cuttings may now be taken of *Antirrhinums*, *Pentstemons*, *Carnations*, *Petunias*, and *Zonal Pelargoniums* among others.

— Seed Sowing. —

Save seeds, watching the plants very carefully of those it is desired to propagate by this means. Make a careful selection of seed and avoid perpetuating worthless, unattractive varieties.

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method of fertilization is worth noting and recording. Or even for practical purposes the nodula-bearing plants might be studied, for one might be found better than peas for developing the much-needed and valuable nitrogen.

— Our Illustrations. —

Pink Cupid.—Like the original Cupid, this hails from California. It is not a sport from the original White Cupid, but an actual departure from its parent, the tall Blanche Ferry. In habit and manner of growth it is strictly a Cupid, spreading from the root, from a foot to 18 inches around, growing from 6 to 8 inches high, and shooting up stems about 6 inches long which bear, in full bloom at once, from three to four handsome blossoms, all borne close to the end of the stem. The standard of the flower is wide, and is a bright rose pink, while the wings are pure white or light pink. The wings are very large and finely formed. The substance of the blossom is peculiarly heavy and it will appear fresh and vigorous in a glass of water long after its long-stemmed parent has withered and died. The seed, which is black, is of wonderfully strong germination, and the plant an early bloomer, coming into bloom simultaneously with White Cupid.

Though flowering early, it continues in bloom very late, bearing a profusion of blossoms so thickly as to completely hide the plant itself. A large piece of, them, looks as if the ground were literally strewn with bright pink rose buds. It is also delightfully fragrant.

Blanche Burpee.—A white seeded, pure white of exquisite form and immense size, having a bold, rigid, upright shell-shaped standard of great substance; it is a wonderfully profuse bloomer, and generally bears three flowers on a stem. A very chaste variety, regarded by many as the finest Sweet Pea ever produced.

Cupid.—The habit of this plant is dwarf and compact, and it does not exceed 5 inches in height, the individual plants spreading to 10 or 15 inches in diameter. The foliage is dark green, the flower stems about 4 inches long, and bear near the end two or three blossoms of the purest white, and quite as large and as deliciously scented as those of the Eckford class. It is a wonderfully free bloomer, the plant being literally covered with the pure white flowers.

A curiosity of Japan is the 'insect bell'—a black beetle, which emits harmonious sounds, like those of a little silver bell.

Root Propagation of Hardy Herbaceous Perennials.

[By E. H. Jenkins.]

No phase of gardening is more fraught with interest than the general propagation of plants. That numbers of plants reproduce themselves a hundredfold by means of their roots is well known, and we have instances of this in mere weeds, as, e.g., the Dock and the Dandelion, or in the garden in certain sections of the Michaelmas Daisy. In these directions, however, the knowledge we possess of these facts is of service in assisting to keep such rampant-growing plants within proper limits. But other plants display a marked tendency to reproduce their kind by means of roots, which however, are of little value to the gardener for some reason or another. Of these the Helenniums and the Phloxes are instances, and as the plants are easily increased by cuttings or division in the usual way, their multiplication by any other means is neither desirable nor profitable. But there are other instances where root propagation is of much value, and particularly so in those cases where the plants, producing no cuttings in the usual way



A Single Plant of Cupid (Grown in a pot).

are also difficult to increase by seeds or division of the roots. Now and again one meets with a plant which rarely produces a fertile seed in this country at all, and which is also almost impossible to increase by the ordinary methods of division. Such a plant is *Senecio pulcher*, an invaluable plant during the late summer and early autumn months, and one but rarely seen in a good condition. Hence root propagation in such a case is of great value, and prevents so good a plant being lost to cultivation altogether. Then there are certain other plants which, while producing seeds in plenty and being available at a cheap rate, are so slow, and uncertain, often enough, to vegetate that other methods of increase show an unmistakable advantage in point of time. Of such things the *Statice*s afford a good example; and there are others where this same method of root propagation is a decided gain in this direction.

From another point of view, root propagation is of great value to the specialist, as by its means selected examples of certain plants which cannot be relied upon to come true from seeds may be readily increased and always prove to their kind; that is to say, while the flowers or seeds are exposed to cross-fertilisation by insects, the roots still retain the true character of the individual

plant in its entirety. Hence it cannot be denied that the root propagation of plants is to the gardener a most useful and valuable asset, and a means in certain instances to be made much of.

Quite recently many of our readers have made enquiries into this method of plant propagation, and the subject being of a seasonable nature, we give in greater or less detail the essential items for its successful adoption. Happily for these interested, the work may be carried out during the winter season, and, indeed, the dormant period of the subjects is the best time. What has to be done is to lift a good-sized plant from the open ground and detach as many of its roots as may be deemed expedient and safe. The detached roots should then be taken to the potting-shed and cut into lengths of about $1\frac{1}{2}$ inches, taking care at this juncture that the uppermost ends of the roots, i.e., the end which was nearest to the rootstock before being cut away, are kept uppermost throughout. By laying the root lengths in order as cut, no subsequent confusion need exist on this head, and the work of cutting up completed, the root-cuttings should be forthwith inserted. The manner of dealing with these cuttings subsequently is to prepare some well-drained pots or pans, the former for preference, and fill

them rather more than half full of rather sandy soil. At this point it will be necessary to gauge the cuttings and to determine whether more soil should be added to the pots or some removed. When the cuttings are inserted and the work completed, the apical portion of the cutting should be just visible above the surface of the soil and level with the rim of the pot, the cutting being placed around the interior of the rim in a not quite upright position. In this way the operator can judge for himself as to the work being rightly done. The cuttings should be placed around at about a quarter of an inch apart or thereabouts, or at a greater distance if there is no scarcity of room. When the root-cuttings are in position, the remaining space should be filled with soil, taking care not to displace the cuttings in doing this. By making the soil of a sandy nature new root-fibres are more quickly formed when, presently, top growth begins. The best position for these pots of root-cuttings is in the greenhouse frame, where a slight warmth, say, of 45° or 50 obtains. Given one good watering when the work is completed, the pots in the position and warmth suggested will require no more for a fortnight. If no frame is at command, the pots of plants may be lodged into fibre or sand in pots of much larger size,

and, by placing a sheet of glass over all, secure that degree of uniformity which is so desirable.

All that is now necessary is a little patience, and a month or six weeks may elapse before any signs of new life are seen from the apices of the cuttings. First we see a swelling or callusing of the surface, and subsequently miniature protuberances that develop into shoots, the latter often appearing quite numerous. So much so is this the case that in larger-rooted species of plants such as *Anchussa italica* and the Japanese Anemones, it has been found desirable to halve or even quarter the longitudinally before inserting them—a sort of murtum in parvo method that possesses a greater value to the commercial than to the amateur. The most serviceable size of root is that about the equal of a cedar-wood pencil for the largest, and say half that size for the smallest. This way the largest roots are secured to the plant. Though I have recommended covering the cuttings with a glass frame, care must be taken to ventilate now and again and to avoid that wet, stagnant condition which may give rise to decay rather than growth. Forcing by an excess of heat is injurious, and will merely produce the top shoots before the root-fibres are present to sustain life. Fleshy roots full of vitality are essential; old roots that have become hard and wiry are usually valueless. The after-treatment of these root-cuttings, and when they shall have become little plants, is simply that given to small seedlings requiring to be individualised to produce the best results; and when this is done the genial conditions of a frame or a greenhouse will be found highly beneficial. There need be no hurry to do this, however, and only when small leaves appear, giving evidence of activity at the root, should the work be taken in hand. A host of plants respond to this particular treatment, but I have no intention of preparing an exhaustive list. A few of the most important, however, are *Anemone japonica*, *Anchusa*, *Gaillardia*, *Senecio pulcher*, *Primula* (the roots of which are small), *Stokesia*, *Eryngium*,

Echinops, *Statice* and the perennial *Poppy*, none of which, save the *Anemone*, affords the least external evidence of an amenability to respond to a method of treatment which is as valuable to the gardener as it is interesting and instructive to the student

—‘The Garden.’

A Day Dream in a Garden.

[By Clement Antrobus Harris.]

To start the bluebells rang a peal—
A clanging, merry chime;
And then a hornet played his horn,
A beetle beating time.

The prelude done, a lion came.

Tom tried to run away,
But Leo gently held a paw,
And seemed inclined to play;

And said: “As turtles used for soup
At dinner scrimmages
Are only mock, I only eat
Dolls, statues, images.”

The play began. Then came a bull,
And tossed Tom through the skies,
Where he was tortured by a host
Of wings he’d torn from flies.

Straight up and up and up he went;
Then down as deep or more;
Then round and round. He’d sat upon
A see without a saw.

He loudly screamed: “Put on the drag!”
“I won’t! Your not a waggon.
Just look behind,” a harsh voice snarled
He looked—THERE WAS A DRAGON.

Just then the lion ate him up,
Explaining: “Dear Brother,
Of course I eat a boy when he’s
The image of his mother.”

Inside him everything was scraps:
A piece of Indian jungle;
An eleph which had lost its ant;
A carb without an uncle.

A horrid sound now met his ears
(He sometimes hears it now).
“It comes,” he thought, “from scraps of
dog—

A bow without a wow.

A pair of gloves came floating by
Without a person to them.
The fingers moved! He tried to scream,
But couldn’t even “boo” them!

He shut his eyes, tried not to see,
When something clammy, cloddy,
Soon made him FEEL a much worse
thing—

A worm without a body!

Just then a tiger sprang at him,
Chockful of aunts and nieces,
And said: “The lions eat boys whole,
But I tear them in pieces!”

The tiger ate him bit by bit—
To finish him seemed loth.
Then Leo ate the tiger whole!
The dragon gulped them both.

“Oh, wake me up!” he tried to cry.
“Do wake me! Oh, I’m choking!”
“Impossible,” the worm replied;
You can’t awake at Woking.”

Was he awake or was he not?
He gave his knee a slap,
And smashed the dragon into—petals:
He thought it whispered “snap.”

A fox he found had watched him for
An hour, if not above one.
It looked so sly; then winked an eye,
And turned into a “glove” one!

A dog, which was a daisy one,
Had bowed just for a lark.
It couldn’t “wow,” because, of course,
It’s stem had got no bark!

He grasped a lily in his hand:
Though not grown on the Niger,
It whispered while he’d two winks left
“I MAY have been the tiger.”

The lion then confessed to him:
Though single names are handy,
My own is double-barrelled, and
The front of it is dande—

Quite wide-awake as he was now,
‘Twas useless to deny,
Though no mad bull came rushing past,
He saw a cow-slip by!

A yellow flower touched his lips:
He’d sipped its due, and so
He hadn’t gained a BITTER, but
A BUTTER-cup of woe!

—“London.”

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About Vegetables.

The Kitchen Garden.

—:o:—

Operations for the Month.

Seeds of any of the following may be sown during this month:—

Beans (French and Asparagus)
Beet (Silver)
Broccoli
Brussels Sprouts
Cabbage
Cauliflower
Celeraic
Celery (Red and White)
Cress
Mustard
Onions (for Salad)
Radish
Rape
Scotch Kale
Spinach (New Zealand)
Turnips

— Planting and Transplanting. —

Plant early Potatoes.

Transplant a few Cabbage, Cauliflower, and Celery plants for early use.

— Watering. —

A thorough soaking of the soil is by far the best method of watering crops that have advanced beyond the seedling stage, for by so doing a deep-root system is encouraged. Only in the case of seed beds is a mere sprinkling advisable.

— Work that Pays. —

Keep all beds free from weeds and those that have not been mulched constantly hoed. All vacant space should now be well trenched and enriched with manure, and the surface kept lightly dug or hoed so that the soil may have the full benefit of all the rain and sunshine, in order that it may be sweet and mellow, and in a fertile condition when the time arrives for autumn and winter planting. The vegetable grower should always be well provided with manure or clean litter of a manurial character, so much of his success depends on this provision.

— Asparagus. —

See that Asparagus plants are secured to stakes so that the beds are not neglected and allowed to dry out.

— Cucumbers and Marrows. —

Thin out the growth of Cucumbers and Marrows, removing old branches and giving preference to young bearing shoots. Keep the soil around them fairly moist, but after they have swollen to the required size, and are commencing to ripen, water sparingly. Cut them when quite small, and do not put the plant to the unnecessary trouble of ripening large fruit when the small ones are so much more delicately flavored.

— The Tomatoes. —

Tomatoes are in full season, and are always a profitable fruit; they yearly gain in popularity owing, no doubt, to the variety of uses they can be put to in cooking. They are now making a very free growth and require a good deal of checking. Any excess of water will cause superfluous growth, which is always at the expense of the fruit, therefore keep the soil around about Tomatoes moist, but avoid overwatering them. Continue to keep the side-shoots pinched, and any leaves that threaten to interfere with the ripening of the fruit may be freely thinned. The fruit wants direct exposure especially as the autumn and cold weather approaches. Gather as soon as it ripens, and remove all overripe and rotting fruit at once from the beds.

— Onions. —

The tops of onions that are still green should be bent to hasten the maturation of the bulbs.

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Keep a Record.

A good gardener is always methodical; he keeps a record of the time he sows the various kinds of seeds and the time their produce matures, with notes of their various qualities. Especially are such notes useful when experimenting on new varieties. Where the garden is of fair size, it is convenient to have it plotted out on paper, with the names of the vegetables grown in the various plots. This method should assist the workman in having a proper rotation of crops, the value of which is conceded by all experienced men. There are a few rules worthy of being remembered.

1. No plants of the same order should follow one another.

2. Plants grown for their roots should be succeeded by those that are not.

3. Plants grown for their seeds, such as beans and peas, should not be followed by those grown for a like purpose.

4. Asparagus, rhubarb, and other plants which have occupied the ground for a long period should be succeeded by some annual crop.

Cabbage Lettuces in Scotland.

The Lettuce is the most important and whole of our salading plants—writes C. Blair, in 'The Garden'—and the Cabbage varieties have been so much improved of recent years that it is hardly worth while troubling with the Cos section. I have to maintain a constant supply of perfectly blanched, tender Lettuce for as long a season as possible; so after many experiments with the varieties offered by the various seed merchants. I have now secured four or five sorts that give entire satisfaction at table, and that have also the strong recommendation of standing quite a long time in good condition. For earliest supplies I invariably rely on Carter's Holborn Standard. It is not the largest variety, but it is of fine, compact growth and delicate flavor. Besides doing admirably as an early sort, it may be grown all the summer with the best results. New York Giant is our

largest sort, but never grows coarse; it is as crisp and delicate as the finest Cos. Dickson's Pearl is a fine new Irish sort that does very well here, but should not be grown for late use, as it is rather more tender than the others named. Iceberg is another Irish raised Lettuce, and, although an older sort, is here of even better quality and grows to a larger size than Pearl. It is very crisp and of delicious flavor. The last variety I will mention is Sutton's Heartwell. It is a splendid Lettuce, especially in a dry summer. The leaves are very broad and smooth, but it 'hearts' well, and so is appropriately named. It stands a long time in good condition.

The Value of Celery as a Vegetable.

We do not make as much use of Celery as a vegetable as it deserves, and probably one of the reasons is that the plant is looked upon as being rather difficult to grow, requiring a lot of manure, much attention and considerable space. Celery in a cooked state is a delicious vegetable to many far preferable to Seakale, and it may be had in season for quite six months or even longer if desired. Apart from its distinctness from other vegetables, Celery is considered a valuable food for certain afflictions, such as rheumatism; but this point we must leave to those with a greater knowledge as regards its medicinal properties. We can, however safely add that many persons can eat Celery boiled or otherwise cooked who cannot digest other vegetables of a more solid nature; indeed, Celery is an ideal invalid's food, and it can be cooked in different forms, and is soon prepared for use.

Parsley.

The botanical name of Parsley is *Petroselinum sativa*. The generic name is said to have been derived from the Greek *petros*, a stone, from its being a native of rocky or stoney places. Parsley has ever been an object of superstitious

observances; for, besides its being the assigned plant from beneath which came our brothers and sisters, we remember how it was always considered such ill-luck to transplant it; that but few people in the midland counties could be got to perform such an act. Mr. John Jones, of Gloucester, who has published some interesting notes upon this subject, on asking a person to whom the order to remove a bed of parsley to another place had been vainly repeated the reason for this neglect, received the following reply:—"He was quite willing to root it up, and destroy it entirely; but transplant it he would not, nor did he know anyone who would willingly take upon himself the consequences of such an act." Mr. Jones thinks it is probable that this herb was dedicated to Persephone as Queen of the Dead, presuming her to be identical with Hecate or Silene, the resemblance of its Greek name (*Silenon*) to that of the last named divinity at once suggesting its direct derivation from her. Parsley was dedicated by the Greeks to their funeral rites, it was afterwards consecrated to St. Peter in his character of successor to Charon, and doorkeeper of paradise.

Onions.

The onion-plant is almost the only vegetable that does not require a change of soil. The Aldenham onions are celebrated in England, and they have been grown on the same site for the last 20 years, and last year with great success. Deep trenching seems to be essential, for the roots of onions penetrate nearly a yard deep. In autumn the beds are trenched four feet deep, adding manure as the work proceeds with old lime rubble near to the surface. Mildew is worst enemy the onion has to put up with, and this pest is prevented by the careful preparation of the soil. An open situation is indispensable, and there must be a free development of the leaf. A long season of growth is required; the seed is sown under glass, the young plants when large enough are pricked off into boxes, and afterwards planted out where

they are to remain. In dry weather they are watered freely, adding soot as a leading stimulant. The aim is to produce large, shapely, well-matured bulbs, without a semblance of undue 'neck.' The varieties chiefly grown at Aldenham are Ailsa Craig, Leamington Giant, and Cranston's variety.

Grubby Tomatoes.

The Horticultural Instructor (Mr. G. Quinn) writes:—"Grubby Tomatoes have been very noticeable this season in the markets and on the hawkers' carts. This damage is caused chiefly by the caterpillar of a moth (*Heliothis armigera*), known in America as the Army worm. The caterpillar is of a dull earthy color, and grows to a length of about 1 in. to 1½ in. The moth is dull brown in color and is somewhat heavy in appearance, with a spread of wings of about 1½ in. Flying in the evening, it deposits its eggs in groups of from two to five just on the underneath surface of the leaves. These eggs are of a dull greenish-yellow color, and may be readily detected by watching the moth alight and then examining the place where it settled. Being chewing insects and attacking the Tomatoes in the early portion of the season it is possible to check them almost absolutely by means of poisonous spray washes. One large grower near Adelaide has informed me that he sprayed his Tomato plantation six times with arsenate of lead at the rate of 1 lb. to 10 gal. of water, and the plants and fruits seemed to be almost free from the pest. This spraying was done some time before the fruit-picking season began, so that the danger of poisoning was eliminated. When Tomato growers bear in mind that it is the earlier ripening fruits which are destroyed by this insect at a time when the produce is often worth nearly £1 a case, it can easily be seen that if the damage is only reduced by 50 per cent. it would pay handsomely to adopt spraying as a means of preventing this injury."

S.A. 'Journal of Agriculture.'

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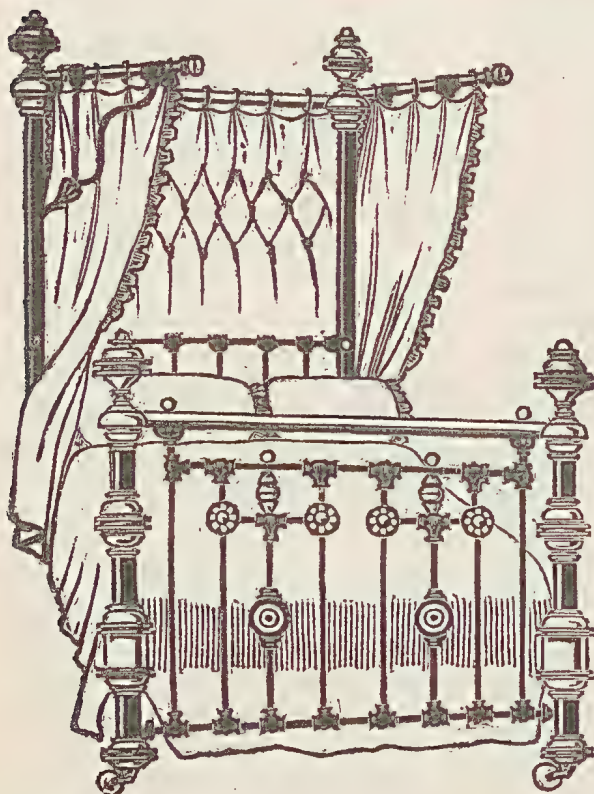
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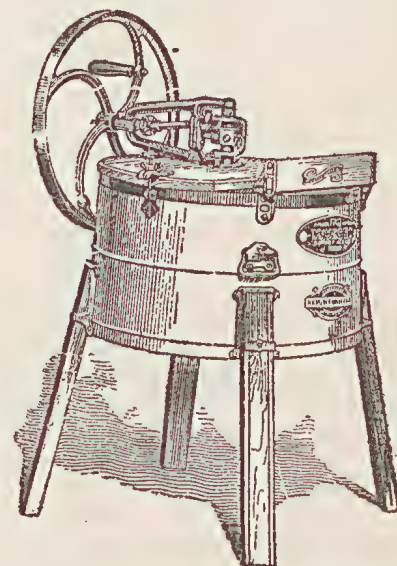
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The Orchard.

Notes for the Month.

— Trees Relieved of Crops, —

In the rush of work attending the fruit harvest, let it not be forgotten that the trees that have recently been relieved of their crops are more or less exhausted after the effort of fruiting. They should be fed and watered, and the soil about them cultivated to sustain and vitalise the roots. We do not want to water them to the extent of promoting a lot of rank and superfluous growth, but a moderate amount of water given at this period will tend to perfect existing root and wood growth, and help the trees very materially in their efforts to prepare for next year's crop. If the soil is allowed to remain trodden down and compressed, the trees will not benefit by the summer showers which, being frequently fast and heavy downpours, run quickly off the surface and do no good whatever. Cultivate, therefore, to enable every drop of moisture to permeate the soil about the roots of the trees.

— Thinning. —

Pruning to obtain light fruiting wood should have been accomplished during the early part of January, for as autumn approaches there is the risk of the growth produced in this manner not ripening before the cold weather sets in. There still remains some thinning to be done; all old useless wood should be removed. This is important because, where it remains, it necessarily hinders the devel-

opment of the new fruiting wood and growth of a useful character that we are so anxious to obtain. Thin out also all crowding shoots so that the sunlight and air may gain free admittance to every part of the tree to quicken buds and ripen immature growth.

— Peach Trees. —

Continue to give water to late peaches that are still swelling, and pinch off any leaves that are overlapping and unduly screening the fruit. Remove exhausted shoots and any other superfluous light wood.

— Pears and Apples. —

Give water to pears and apples where the fruit has attained its full size. Thin the crops freely of trees that are too heavily laden. Make a point of reducing the fruit equally all over the tree. Apples and pears can be gathered and stored when they are well colored, full-sized, and the pips brown and quite free of the core. Careful handling when gathering is all essential to their perfect preservation. They should be carefully placed on some soft material in the baskets in which they are to be conveyed to the store-room. The atmosphere where they are to be stored should be very slightly moist and well ventilated. All fruit-rooms should have been very well cleaned and aired previous to this season, and the woodwork thoroughly scoured with soap and hot water and soda. Pack apples and pears for export in paper-lined boxes of compact size and form, and wrap them in cork dust, shavings, paper, or something equally well adapted that is available.

— Prepare for Citrus-planting. —

As the season approaches for citrus-planting, all land destined for that purpose should be thoroughly trenched and prepared. Perfect drainage is an imperative necessity. Soil of a free, composite character, with, if possible, an admixture of ironstone gravel, should be provided, and should be kept sweet, warm, and mellow by careful cultivation. Citrus trees are extremely sensitive to any sourness in the soil, and manifest their disapproval by a sickly appearance

and a liability to pests and disease. Where new land is to be prepared, it should be crossed and re-crossed by the plough and deeply subsoiled. A clayey subsoil is eminently suited, being cool and sufficiently retentive of moisture in summer.

— Budding. —

The present is a favorable month in which to bud fruit trees. To obtain the best results one must not only be familiar with minor points in connection with the technical branch of the subject, but must have a comprehensive knowledge of the whole in order to be able to apply to the best advantage to one's own immediate circumstances.

With nearly all the subjects that are budded, the stock is selected that will best adapt itself to real conditions of climate and soil. It is a reconciling medium.

Peaches favorably situated in a rich, warm, mellow soil, subject to neither excess nor dearth of water can be budded on to their own seedling stock. In damper and more ungenial positions, the plum stock should be employed, and the same applies equally to the apricot.

Plum trees have the reputation of being exceedingly hardy, but they have their prejudices nevertheless, liking neither droughty positions nor cold water-logged soils. In the case of the former condition, bud them on to the Myrobalan stock, and in the latter case use the Mussel stock.

Cherries can be worked on the Mazzard, Mahalet and Kentish cherry stocks. Strong healthy seedlings of sweet orange gives satisfactory results as stocks for lemons, while the bitter orange stock can be employed for oranges.

Amateurs and tyros should do a little practice budding before experimenting on their orchard trees, as it requires a certain amount of skill in manipulation in order to bring about a perfect union. The wood into which the bud is to be inserted should be healthy, and not more than two or three seasons old.

Trees that were budded last month will require examining occasionally to ascertain whether they have taken, and that



W. GILL,] "Deglet Nour" Palms in Fruit, Lake Harry Reserve, near Hergott.

[PHOTO

progress is satisfactory, and to loosen the ties

— Strawberries. —

Fresh beds for strawberries should be prepared during the month, well trenched and enriched with manure. Select well rooted runners for planting, and if insufficiently provided with these, peg down some more to make up the number. Clean up established strawberry plots mulch and water them well, and remove all runners that are not required.

— Raspberries. —

Now that Raspberries have finished fruiting the old canes can be pruned and the others severely thinned. Water the plants liberally in dry situations.

— Grapes. —

The artificial watering of grape vines should be discontinued, but moisture should be conserved in the soil as far as possible. Everything should be done now to hasten the ripening of the fruit. The only chance of getting really good

returns from the table grapes is to put them early on the market, the earlier the better. Later on there is the inevitable glut, and then good bye to our chances of profit. That is the aim and object of the present season. Should the season prove unsettled, cold and showery, very severe thinning must be resorted to. Leaves and shoots must be removed to insure direct exposure of the fruit. Continue in any case to regulate and thin the growth which is always in excess of the actual requirements of the vine; but take care of course to leave sufficient foliage to afford protection to the grapes from the direct rays of a hot sun. It is almost too obvious to state that the warmer and dryer the district in which they are grown, the more natural protection must be afforded. Table grapes will not store nor carry a long distance. Where it is necessary to keep them any time after they leave the vine, they should not be placed on shelves like other fruit, but be suspended by a string attached to their

stems from nails in a dry airy room. Gather them when quite dry and handle them with the utmost care to preserve the bloom. Nip out all green and damaged berries, and offer the fruit for sale in small paper lined boxes.

See that Worm!

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W. GILL,] Plantation of Sugar Gums (*Eucalyptus corynocalyx*) Trees, 8 years old, [Photo
Redhill Forest Reserve.

Mulching.

This is an operation that is not given the attention that it deserves, for though no doubt the mulch forms a harbor for various noxious insects, there is probably no better treatment for keeping the trees healthy and vigorous.

Mulching tends to keep down weeds to keep the roots cool, and to retain moisture in the soil for the tree's use, as the absorbent properties of the soil for water are increased by the addition of organic matter. On poor white sandy soils mulching is of especial value, as the heat is radiated from such soils to such an extent as to often scald the trunk and main branches of the tree; mulching prevents this radiation. Very heavy soils are also greatly benefited by mulching, because in dry weather they are apt to cake and become exceedingly hard; this is prevented by mulching.

Mulching is good for citrus trees of all kinds; in fact, there is no better treatment for this class of fruit-trees. The operation may be done by means of bush rakings, consisting of more or less decomposed leaves and branches, fine top soil, compost of any kind, stable manure, rotten straw, rotten weeds, or corn-stalks. If there is a difficulty in obtaining suitable material for mulching, then it will pay to grow a crop of peas, cow-peas, or other strong-growing leguminous plants, which should be cut when coming into pod, and placed round the trees. Leguminous plants, besides acting as a mulch, are a valuable manure on account of the quantity of nitrogen they contain.

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Cut Soles a Speciality.

The Apple Crop.

The Horticultural Instructor (Mr. G. Quinn) writes:—'The crop of apples for this season promises to be of fair average quantity and of good quality. The growers in general are using arsenate of lead as a spray against codlin moth, and very large quantities indeed of this compound, comprising quite a number of different makes, are being used throughout the State. Wherever the spraying began with the setting of the fruits the orchard inspectors report that very little evidence of the insect is noticeable. To those who have not intended to do so, I would suggest that they spray their apples and pears again in the early part of the new year, and such late sorts as Rome Beauty, Stone Pippin, Rokewood, Yates, and so forth should receive even another treatment after the ordinary export varieties have been given the

Hints on Root-Pruning Fruit Trees.

A fruit tree must not be root-pruned unless it is absolutely necessary that it should be done. If a tree makes pretty strong growth and the latter ripens and bears good crops of fruit, then root-pruning would be a mistake, as the result of such pruning would be to cause a stunted growth generally.

Root-pruning is absolutely necessary when a young specimen continues to make still stronger growth from year to year, and which does not ripen nor bear fruit. Again, when a young tree has been severely branch pruned, and this has caused a too strong growth to follow which has not thoroughly matured, root-pruning is essential. Very severe branch-pruning causes a mop-like growth of sappy shoots which will not be servicable, and the only thing to do then is to create a balance between plant and root growth. This is done by exposing the roots, as described below, and the reduction of their dimensions. The principals of root-pruning are the restriction of the size of the large roots by cutting them back, and so causing the new growths from them to be fibrous, and the preservation of all existing fibrous roots. The longer the large, fibreless roots grow, the more rampant the branch growth is; the more fibrous the roots are, the better will the branches ripen and bear flower-buds and, finally, a full crop of fruit. When the trees are once brought to this condition, they remain fruitful without further pruning of the roots, the annual crops preventing a too luxuriant production of branches.

Example: A tree with a stem 3 inches in diameter must have a trench opened 3 feet 6 inches from it. All large roots must be cut off, fibrous ones retained, and the trench must be refilled with good, gritty loam, mixed with the original soil, and made firm.

Prime quality fruit will not this season be purchasable, except at an advance over prices paid for last year's crop.



W. GILL,] Maritime Pines, Emu Flat Forest Reserve, [PHOTO
15 years old.

application referred to. With a view to testing the comparative value of some of the arsenates of lead now upon the market, the Horticultural Branch of the department is conducting an exact test with those known as Swift's, Nicholls' and Platypus at a small orchard near Lyndoch; and it is hoped that by the end of the season something like definite information will be available. Even up to the present one or two points of interest have transpired in connection

with the use of these arsenates, but it is not proposed to make any statement at present respecting their various values. There is no doubt that this form of arsenical spray is superseding all others, very largely because of the ease and simplicity with which it can be utilised, and also on account of the fact that it is less injurious to the trees as well as to the spraying apparatus than other arsenical mixtures.

—'Journal of Agriculture of S.A.'

Interesting Orchard Notes.

The present apple season has undoubtedly proved the efficiency of the arsenate of lead mixtures to eradicate the codlin moth

Last season's citrus plantings in New South Wales were so extensive that many of the nurserymen were unable to provide the trees required.

The free distribution of trees has been carried on by the South Australian State Forest Administration for 27 years, during which time 7,266,525 trees have been given away to 34,998 applicants.

The principal kinds of trees planted last year were:—*Pinus insignis*, *Eucalyptus leucoxylon*, *E. corynoalyx*, *E. largiflorens*, *E. sideroxylon*, *Fraxinus excelsior*, *Casuarina glauca*, and *C. Lehmanii*.

Mr. Walter Gill, the conservator of forests, states that during the year ending June 30, 1909, 277,616 trees were sent out from the seven Government nurseries to 1,680 persons, and that catalogues, with instructions as to cultivation, were issued free.

The Pennsylvania Railway Company are doing a big thing in planting trees for sleepers and other purposes. Already nearly three and a half million trees have been planted by this corporation within the last three years, and preparations are in progress to plant 1,000,000 more.

In the Pacific north-west, the States of Oregon, Washington, and Montana, the production of apples is increasing at an extraordinarily rapid rate. At the present rate of increase, it is calculated that in another ten years there will be produced annually in the above localities 100,000 car-loads, or 60,000,000 boxes. It is thought that the demand for apples will increase in proportion, as the production of this fruit expands.

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W. GILL,]

Hardy Catalpa, Wirrabarra Forest,
20 years old.

[PHOTO

Codlin Moth.

The Horticultural Instructor (Mr. G. Quinn) writes the 'Journal of Agriculture of S.A.' as follows on this pest:— 'During the present apple season the inspectors of orchards have been actively engaged in attempting to reduce the ravages of the codlin moth; and, with a view to carrying out the requirements of the law more strictly, a great number of useless apple and pear trees in the Mount Lofty ranges have been cut down by the

inspectors' instructions. It is fully recognised that, as the law does not empower the officers to cleanse the gardens at the expense of the occupiers who refuse to do anything themselves to destroy this pest, it is only a waste of time and a danger to the surrounding orchards to prosecute such persons, and consequently the law which permits the destruction of neglected trees is being put into operation, because when the tree is removed there can be no further infection of the fruit of the careful neighbor, and in the long run the process is far cheaper for the recalcitrant occupier or owner of the useless and neglected tree.'



THE FARM.

Why Does a Horse Stumble ?

Replying to this question by a correspondent, 'Farm and Home' says :—

You propound a most interesting question, but one that it will be difficult to answer, or do more than suggest possible causes, which may or may not account for any particular case. The subject is one that has puzzled many an experienced veterinary surgeon and practical horseman, and in the absence of all those defects enumerated, and which might reasonably be held to account for horses falling, the actual cause remains a mystery. You say, 'doubtless you have met some like it.' We have; and we once saw a well-bred and stylish-looking cob, whose behaviour so nearly resembled that of the animal you describe that they might be the same horse. In this cob there appeared to be absolutely no defect in conformation, style of going, or unsoundness. He would fall down anywhere, but rarely in going down hill. He would do so in harness or at saddle, when going at a walk or slow trot, and then for weeks would be quite safe. In this connection the heading to your query, 'Why do horses stumble?' seems hardly appropriate. All sorts of theories were formed to account for this cob falling—including carelessness and temporary loss of consciousness, but eventually a tumour was developed in the lower part of the shoulder, and it was decided that the sudden falls were due to pain caused by that.

We have also met with cases where the most decrepid of old corks, driven in the most careless fashion by inexperienced

lads, and at a rattling pace, never came to grief, and we can no more account for the one than the other. We believe, however, that the majority of those cases, where horses do not stumble, but fall suddenly, and concerning whose conformation or soundness no fault is palpably apparent, are due either to vertiginous seizures of brief and passing character, to 'speedy cut,' or the striking of the splint bone with the shoe of the opposite foot, or to crossing the legs in action.

Nitrogen as a Fertilizer.

This important element is essential to plant life, and, while it is abundant in the elementary form, it is, nevertheless, the most costly material which enters into the composition of commercial fertilisers. The high cost is due to the fact that ordinary plants can utilise nitrogen, only when it is in combination with other elements, and there is no economical process known by which the nitrogen of the air can be combined directly with other elements. Fortunately we have the means of obtaining nitrogen, by an indirect method, from the atmosphere, of which this element constitutes about 78 per cent. This may be accomplished through the agency of bacteria. These are found in the soil, and under proper conditions multiply with amazing rapidity. They develop only on the roots of leguminous plants, such as clover, cowpea, vetch, velvet bean, &c. Here they make use of the nitrogen of the air, absorbed by the soil, and convert it into compounds which are taken up by the plant. On the roots of the plants are produced nodules that are frequently very numerous and variable in size. This method of restoring nitrogen to our soils is becoming more generally appreciated as it furnishes this element at the least possible cost.

The effect of nitrogen on a plant is very marked. It promotes a rapid growth of leaf and stem, and tends to produce a large, green, succulent plant. While a plant is in this condition, with a

large supply of available nitrogen present in the soil, the formation of buds and flowers is retarded, and the flowers are not only diminished in numbers, but many of them are rendered, so that they produce no seed. A plant which grows up with an abundant supply of nitrogen is also less capable of withstanding a drought, and begins to burn when the moisture supply becomes limited.

Nitrogen does not merely act as a stimulating agent to the plant, forming albuminoid and other nitrogenous compounds. Plants grown on a soil well supplied with nitrogen are much richer in the above compounds than those grown on a poor soil.

It is highly probable that nitrogen must be in the form of a nitrate before a plant can make use of it. In the soil there are a great variety of micro-organisms, and some of these have the power of converting various substances, containing nitrogen, into nitrates, so that most nitrogenous compounds when applied to the soil are acted upon by these bacteria, and, through this vital agency, are converted into nitrates. For the nitrogen of fertilisers we are dependent upon sodium nitrate, sulphate of ammonia, or various organic compounds, such as blood, bone, cotton seed meal, tankage, fish scrap, &c. It will now appear that the source from which the nitrogen of a fertiliser is derived is a matter of great importance. If nitrate of soda is used all the nitrogen is immediately available. If sulphate of ammonia is used it may become rapidly available on certain soils, slowly available on others, and on still others it may exist in an unavailable form so long as to be useless to the crop for which it was applied. In the case of the organic substances we find the nitrogen of some much more readily converted into nitrates than that of others. Much depends upon the nature of the soil and on the kind of bacteria present. We are just beginning to appreciate the importance of the action of these bacteria, and we may expect far-reaching results from investigations along this line.

—H. K. Miller, in 'Press Bulletin, 22.

Cultivation of the Potato

By the Editor of the 'Queensland Agricultural Journal.'

(Continued from last Issue.)

— Raising from Seed. —

I am not aware that any attempts have been made by Queensland potato-growers to raise new varieties from seed. The potato plant flowers freely in this State, although the flowers usually drop off before the fruit or 'apple' is formed. Where, however, the 'fruit' as distinct from the 'tuber' comes to maturity, there is no other reason why Australian growers should not evolve a prolific disease-resisting potato equal to some of those lately raised from seed in England and sold at such enormous prices. A correspondent of the 'Agricultural Gazette' London, has, through the inquiry column of that journal, elicited the following instructions for raising new varieties from seed:—

Those who desire to produce new varieties of potatoes must first practise the art of cross fertilisation, and must possess abundant patience. Like many other species which are not habitually multiplied by seed, the potato has a remarkable tendency to revert to the wild form. It may be necessary to cultivate 100 or even 1,000 seedlings, before finding one which is really worthy of a place among the better varieties already existing. M. Vilmorin says that in France the raising of seed potatoes has been proceeded with in a somewhat haphazard manner; whereas in England, on the other hand, a more systematic method has been followed. richness in starch, excellent of flavor, power of resisting disease, with little tendency to develop haulm, being the characters we on this side of the channel generally seek. With regard to cross-fertilisation, it is a rather delicate operation, and needs time and attention to details. Directly the flower begins to open, the anthers must be removed carefully with a pair of fine-pointed

scissors. This is necessary to prevent its own pollen from falling on the stigma and self-fertilising the ovary. It is well also to tie a piece of soft muslin round the emasculated flower. You have now to examine the flowers of the other variety which is to act as the male or husband. You may have to examine dozens of flowers before you will find one with its anthers bearing the precious pollen in a powdery form, as some varieties are exceedingly shy pollen-bearers, owing to the energies of the plant being occupied in producing tubers at the expense of full development of its masculine attributes. When you find the pollen dust, collect it on the point of a clean, dry camel-hair brush, and gently brush it on the point of the stigma or female organ that you have previously protected by means of muslin. You must, however, not do this prematurely, but wait till you observe the point of the stigma covered with a viscous-looking fluid. Then and then only, the stigma is ready for the nuptial rites to be performed. Do not remove the muslin; this will serve to prevent the berry when ripe from falling and scattering its precious seeds. It will easily be ascertained when the berry is ripe, and then the latter should be gathered, placed in a box in a room to become thoroughly dry, after which remove the seeds, place them in a packet, and store them away safely till spring. But, when the seed has been saved after much pains and trouble, it will require some humoring when it is time to sow. Then the seeds should be sown in pans or shallow boxes 3 in. deep, containing an inch of drainage, then a layer of moss, and sufficient compost, equal parts of light loam leaf-mould, to fill the box or pan to the top. Press the compost down with a piece of board, and sprinkle some fine sand over it. Sow the seeds thinly and then cover with an inch of finely sifted mould. The soil must not be too moist or too dry, as the seeds may die in one case and rot in the other. The seedlings should appear in about ten days, and they must have abundance of fresh air. Some writers suggest that the soil should be baked before sugaring it over the seeds, as the damping-off fungus is rather to be dreaded.

(To be Continued.)

Dew Ponds.

A recent number of 'The Lone Hand,' in dealing with 'The Dew Ponds of England in Relation to the Nullarbor Plains of South Australia,' states, inter alia:—

— Method of Construction. —

"The dew pond at Maiden Castle, in Dorsetshire, was pointed out to the writer by this name when as a boy he used to sail boats on it; but the reason of the name was never questioned until this year, when a large farmer in Berkshire called his attention to a small pond full of water, and wanted to know why a cemented pond he had just built had no water, while the one in the next farm was always full. Dew ponds were invented to give water in the strongholds for man and beast. There is still in England at least one wandering gang of men analogous to the mediæval bands of 'bell founders,' 'masons,' 'well-sinkers,' &c., who will construct for the modern farmer a pond, which in any situation in a dry soil will always contain water—more in the heat of summer than in the winter rains. This water is not derived from springs or from rainfall, and is speedily lost if even the smallest spring is allowed to flow into this pond. The gang of dew pond-makers commence operations by hollowing out the earth far in excess of the apparent requirements of the proposed pond. They then thickly cover the whole of the hollow with dry straw, like a thick thatch. The straw in its turn is covered by a layer of well-chosen, finely-puddled clay. The pond will gradually become filled with water, the more rapidly the larger it is, even though no rain may fall. One thing, however, must be remembered, great care must be taken that the margin of the straw must be protected effectually by the clay.

— Why and Wherefore. —

"The explanation is this:—If such a pond is constructed on the summit of a down, during the warmth of a summer day the earth will have stored a considerable amount of heat; while the pond, protected from this heat by the non-con-

ductivity of the straw, is at the same time chilled by the process of evaporation from paddled clay. The consequence is that during the night the moisture in the comparatively warm air is condensed on the surface of the cold clay. As the condensation during the night is in excess of the evaporation during the day, the pond becomes, night by night, gradually filled. The dew pond will cease to attract the dew if the layer of straw should get wet, as it then becomes of the same temperature as the surrounding earth, and so ceases to act as a non-conductor of heat. This always occurs if a spring is allowed to run into the pond. In practice, it will be found that the pond will afford perennial supply of pure water. The question arises—Could such ponds be utilised in South Australia? It seems most reasonable to suppose that they could. Take, for instance the west coast and Nullabor Plains. These districts are most notorious for their heavy night dews caused by cool nights after clear, hot days. It is on record that a young camel calf was lost when the Government had a party of searchers for artesian water under Mr. J. W. Jones, who was directing affairs (he being Conservator of Water in the eighties). The camel was recovered in a full-grown and flourishing state two and a half years later, having subsisted all that time, as far as water was concerned, on the heavy falls of dew, there being no water on the surface for hundreds of miles. Such being the case, it seems worth the trial of putting the dew pond to the test. If one succeeds, then it must be only a matter of time till the whole of the fertile Nullarbor Plains could be made habitable.

— Care Required. —

“Several things must be strictly looked after in the experiment to ensure success.
1. The pond must be well and carefully constructed according to rules laid down.
2. The strictest care must be taken to protect the top edge of the straw from intruding moisture. 3. The pond must be well fenced and water taken out only by bucket or pump, in order to take care of the margin. The writer would suggest that when the straw is laid like an invented

thatch (very thick), a lining of wire netting should be spread all over it, well fastened together. Upon this spread a thick layer of concret (as lime is plentiful), then a skin of cement; over this a thin layer of clay, which need not be of the best, as it would not be required to make the pond water tight, but only to give surface for condensation. This, at all events, if successful, after the manner of English ponds, would give all the water that would be required for the railways, leaving the settlers to work out their own salvation after the example was once set. Will Australia repeat the history of the pulalithic pondmakers? It is certainly a better climate and better opportunities.

Notice of Removal.

Owing to the great increase of patronage we are receiving from the public, it has been found necessary to enlarge our Staff and Printing Plant, to do which we have been compelled to remove to
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Does not burn the foliage
Gives rise to no poisonous dust
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Adheres firmly to the leaves
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One pound of Paste makes 30 gallons of Spray.

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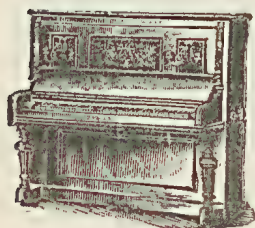
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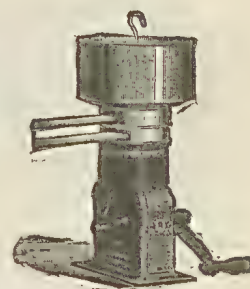
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16 "	£4 15s.	20 "	£5 15s.
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CANNOT GET OUT OF ORDER WITH FAIR USAGE.

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❖ ❖ The Poultry Yard. ❖ ❖

Poultry Farming on Small Holdings.

[By H. V. Hawkins, Poultry Expert, in
'Victorian Journal of Agriculture.'

The annual value of poultry products raised in Victoria in 1908 was estimated by the Government Statist at the excellent total of £1,547,000. This of course, includes not only the poultry and eggs sent to market, but also those consumed on farms. These figures increased by £47,000 over those for 1906, and were equal to more than one-half of the value of the aggregate output of the mining industry (£3,031,000) for 1908. But there is room for expansion. Poultry-raisers do little more than supply the demand in the State. Indeed they are not able yet to fully meet the requirements for eggs. In 1908, after deducting exports, there was a net importation into Victoria of 589,322 dozen eggs, valued at £22,631, from the other States. But these figures are trifling when compared with those for New South Wales and Western Australia. In the same year, the former State's net imports of eggs were no fewer than

1,339,315 dozen valued at £56,713, and those of Western Australia, 1,129,709 dozen, worth £55,345. The only States in the Commonwealth which are able to show a balance on the right side of the ledger in respect to the Inter-State egg trade is South Australia, which exported 2,825,882 dozen, valued at £127,203, to the other States in 1908; and Queensland, which provided 261,185 dozen, worth £10,687.

— The Industry in Denmark. —

Since the advent of co-operative stores or collecting centres throughout Denmark poultry breeding has become wonderfully stimulated. In fifteen years the number of the fowls increased 150 per cent. (7,962,132); turkeys by 80 per cent. (25,045); ducks 38 per cent. (145,513); and geese decreased to 13 per cent. (25,571). A reasonable estimate is that the total poultry crop is valued about £3,000,000 per annum, which is equal to £1 4s. per head of the population. Not only have the numbers increased, but the eggs have advanced in value.

The question then naturally arises: 'What has brought about Denmark's success?' Firstly, co operation; secondly, the Government creating centres for

breeding purposes, which there are 25. Before a farmer can receive a distinction of his farm being a created breeding centre he must show that his yearly income from poultry products is satisfactory. Although the subsidy is small (about £5 per annum), the government provides for him with his stud stock free, and he is then under the supervision of the Poultry Expert, who is employed to visit and advise. This scheme has worked remarkably well, so much so that a spirit of healthy rivalry has sprung up amongst the farmers, who are privileged to select birds at 5s. each for these centres, which all have the trap nest in use.

The egg exporters offer prizes each year for the best kept centres, which is a further inducement.

The writer is firmly convinced that some such system would add a stimulus to the industry, and it would not be long before Victoria stood out prominently as a large exporter of eggs.

— Egg Circles. —

Should the Government accept the writers recommendation, i.e., that the time is ripe for the adoption of forming egg-collecting circles, as is done in Denmark and is quite recently done in South Australia, the egg trade will become gigantic. In addition to applying our own markets, we should, I feel confident, share in the Home market, which pays to foreign nations close upon £3,000,000 per annum for eggs.

— Buying Eggs by Weight. —

Much has been said of buying and disposing of eggs by weight. As far as selling to the consumer is concerned, the present method is far from satisfactory. No incentive is given the breeder to build up a flock of layers averaging 2½-oz eggs. At the time of writing, 1¾-oz. eggs are fetching equal prices with those ¾ of an ounce heavier.

In Denmark, all eggs are brought from the farmers by weight, and sold by the dozen in standardize grades; some form the discrimination against small eggs is undoubtedly a part of the needed reform in buying eggs from the producer. This



Government Poultry Station.

Agricultural College, Roseworthy.

Eggs and Chickens for Sale during Season.

Black Orpington, Buff Orpington, and Indian Game—Eggs, 15s., Chickens, 30s. a dozen.

Silver Wyandottes, Faverolles, Minorca, White Wyandotte, White Leghorn, Old English Game—Eggs, 10s., Chickens, 21s. a dozen.

Table Birds—Eggs from various crosses, 3s. when available.

Settings will be 15 eggs and no replacements.

Chickens at a month old.

he stock is of first-class quality and vigorous

For further particulars apply to the Poultry Expert, Crown Lands Offices, or the Poultry Superintendent, Agricultural College, Roseworthy.

discrimination may be brought about by buying by weight, by docking all lots of eggs of less than a certain average weight, or culling out all eggs less than a given weight or size, and paying considerably lower prices for these culls. If this were done, we would see farmers weeding out the hens laying small eggs.

The greatest handicap to the egg trade of Victoria is in my opinion, the storekeeper with his custom of bartering merchandise for eggs. He reckons his profits on goods as more than his loss (if any) on eggs. No effort is made by the storekeeper to buy eggs on a quality basis or to induce his clients to improve their flocks.

(To be Continued.)

Metamorphosis of a Fancier.

When first I started in to breed.

In quite a modest way.

I had one bold outstanding need—

To show, and win the day.

I bred alone for "fads" and "points,"

In eager search of fame;

"In face of all that disappoints,

Win prizes"—was my aim.

Alas! ambition tottered sore

In face of common sense;

I found that I could show no more

Because of lack of pence.

And so I boldly advertised,

Stood up on both my legs,

And opposition paralysed

In sales of stock and eggs.

It seemed I'd found a certain cure

For all the breeders ills,

But fancy sales fell off as sure

As rose the feed man's bills.

And so I struck another grade,

And one that's hard to beat;

I'm sure most money's to be made

In "market eggs and meat."

—An experience, translated by "Forrest" in an Exchange.

Poultry Brevities.

See that all drinking vessels are thoroughly cleansed each week with hot water and washing soda.

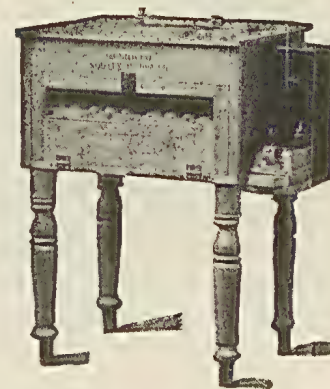
† † †

No better means of spreading chicken cholera exists than by the means of impure water-vessels.

† † †

A fowl that has contracted chicken cholera frequents the water-vessel to assuage its raging thirst. As it drinks it leaves the disease germs in the water.

Then, as the water-vessel is visited by healthy fowls, they absorb the germs, and chicken cholera spreads through a healthy flock.



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About Pigeons.

Seasonable Notes.

The following notes, which we cull from 'The Australian Hen,' are from the pen of Mr. J. Noble, a Sydney importer and breeder:—

All studs of importance will now be mismatched. Any fancier who has avoided cleaning out secluded corners or any other portion of their aviaries, in case of disturbing breeding operations need have no further excuse, and should not delay a special clean out, making a sweep also of any useless or damaged fittings, these harbor refuse, feathers, and vermin. Gather up all nest pans, thoroughly wash and disinfect them, after which carefully store away ready for the next breeding season. Some fanciers prefer to pack these nest pans away in some safe corner of the roof or any other exposed position, where they are subject to all conditions of weather, as this form of storage tends to still further preserve and purify them.

* * * * *

Most studs promise an early moult, and are even now far advanced in this stage and floors well covered with loose feathers. This is a good sign that all is going on well, a liberal supply of mixed canary seed as a 'tit bit' will help matters along. New wheat is also to be strongly recommended, if not supplied too freely, in case it may tend to 'scour' not forgetting the 'iron tonic,' previously referred to.

* * * * *

All promising youngsters will be singled out ere this, these should have special attention,

* * * * *

Discretion should be used regarding the mode of getting the different varieties into condition or show form. I refer to 'housing' and I don't think I can do better than here reproduce an article on this subject, written by that 'Wizard' in pigeon culture, Mr. Richard Woods, of England, and which appeared in one of

the English fanciers' journals sometime ago, as follows: 'No experienced fancier would dream of housing the comparatively delicate short-faced tumbler, in quarters that would be considered the beau ideal of a house for the dragoon.'

* * * * *

To more clearly express my views, I will divide the sort of accommodation I suggest into four different classes thus:— A for Carriers, Barbs, Jacobins and English Owls; B for Pouters, Trumpeters and Fantails; C for Tumblers, Turbits, Foreign Owls, Orientals, Nuns and Magpies; D for Dragoons and Antwerps.

The varieties scheduled under the letter A cannot be kept in perfect health and vigor unless they are provided with access to outer flights, and fair amount of exposure, to the beneficial influences of the weather; for instance, if kept in close confinement, the eye wattle of the carrier would soon become sickly looking, soft and flabby. The Barb would lose its ruddy appearance of the eye cere so much admired in this variety. The Jacobin would be speedily 'abroad' in feather, and the sprightly Owl would soon develop a woe begone appearance.

B. It will be readily seen that Pouters Trumpeters, and Fantails which are classed under B if exposed to the influences of the weather would rapidly deteriorate in these essential properties, and the ardent fancier strains to produce and maintain. These should be kept in small covered lofts, yet admitting as much light fresh air, and sunshine as possible.

C. Embraces numerous varieties, that may be kept under similar treatment and conditions, being a good roomy loft to which should be added a large and covered flight.

D. Dragoons and Antwerps thrive better with more exposure than would be good for most varieties. The aviaries of these birds, should, therefore be considered with the idea of keeping these birds as much exposed to the weather as possible, i.e., the 'house' should be of much smaller dimensions than the flights. The flights indeed, should be as large as possible.

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For the Ladies.

Home Wrinkles Worth Remembering.

There are a number of little-known facts which often might be a great use. For instance, it is quite easy to settle at the breakfast table what the day's weather will be, according to a man of science who has been studying the phenomena observed when a piece of sugar is placed in a cup of coffee, and the relations existing between these and the then prevailing weather conditions.

If a piece of sugar is allowed to dissolve slowly, without stirring the coffee, a considerable number of air bubbles will rise to the surface and will stay there. Should these bubbles form a frothy mass in the centre of the cup, it is safe to rely on a continuance of fine, clear weather. Should the froth collect in a ring around the edge of the cup, showery weather is to be expected. Small masses of bubbles between the centre and the rim are indicative of changeable weather; should these masses all make for one point at the rim without any separation, it is tolerably certain that a heavy rainfall is imminent.

— Homely Weather Wisdom. —

It is quite easy to foretell the weather by the humming of the telegraph wires, after a little practise. In fact, the method is so delicate that the humming of wires running east and west presages a fall of temperature of ten or twelve hours before it is marked by the thermometer. On the other hand, a similar humming of wires running north and south foretells a rise of temperature.

It is also quite possible to use the telephone as a highly delicate barometer. This is done by planting two iron rods of a distance of about twenty feet one from the other, and connecting the wires with the telephone. Every eight for ten days the soil in which the rods stand must be well soaked with a solution of ammonium hydrochlorate. Then it will be quite possible to forecast the

weather at least twelve hours in advance and far more accurately than with any barometer. If when listening at the telephone a crackling or pattering noise is heard sounding like hailstones falling on a roof, it is certain that a rain storm is not far distant. A low murmuring sound foretells of a sudden change in the temperature.

— About, Boots, Wicks, and Eggs. —

But there are all sorts of little tips useful in the home. For instance, the skins of bananas are really excellent in the cleaning of tan boots, and yield a very fine polish. The safety of the ordinary oil-lamp is vastly increased by carefully boiling the wicks in weak vinegar every week.

A very simple method of finding out the age of an egg is by means of the air-space which will be found towards the broad end of the shell. It is easy to discern this air-space by holding up the egg between the hands before the light in a dark room, and by its size to determine the age of the egg. When the egg is perfectly fresh the air-space is very small; but as the age increases the space extends, until, when the egg is three weeks old, the air-space occupies about one-sixth of the entire contents. With a little practice the age can be told with tolerable accuracy.

One of the best insecticide for use in the household is an ordinary newspaper. The cheaper the newspaper is, so much the better. Printer's ink is especially detestable to insects, and when woollen things are wrapped in newspapers they are certain to be free from the attraction of the dreaded moth.

— Cleaning the Chimney. —

The house chimneys may be cleaned in a very cheap manner, and overstepping the law by setting fire to them may no longer be feared. Empty zinc or tin cans should be preserved, in order that they may be utilised when necessary in cleaning the chimneys. A cocoa-tin or any other sort of tin can, will do. The cans should be placed on the fire, and they will take about two or three days to disappear entirely. The fumes from the

tin have the peculiar property of preventing an accumulation of soot. At the end of a fortnight it will be discovered that the flues of a close kitchen range will have only a little dust in them, instead of the usual heap of soot.

— Carrots. —

The prosiac carrot is also very useful apart from its edible qualities. If the green part is cut off low and the carrot is sliced off at about a half an inch below the root, it will form an excellent table decoration. The tops should be placed on pots of silver sand and kept moist. Then a very pretty fern-like plant will shoot up, which will form an effective table decoration.

— Collar Studs. —

Most of us have experienced the difficulty of getting a stud through a collar buttonhole, but the process becomes remarkably simple by adopting the following method. The finger should be damped, preferably with warm water, and placed behind the buttonhole for a second or two. The stud will then slip through the hole in the easiest fashion imaginable. When there are no scissors handy, a wax match may be used for collars or cuffs that are frayed.

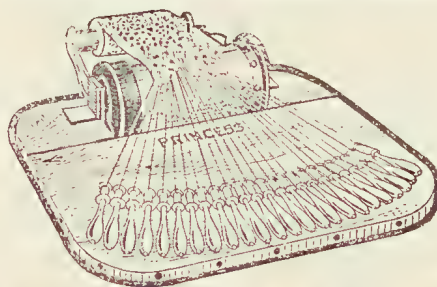
— Money Always Handy. —

Many valuable lives would have been saved if a halfpenny had been used in cases of the bursting of a varicose vein. In such a case it is perfectly useless binding up the place with rag or cloths as the bleeding will still continue, and the cloths will simply soak up the blood. A halfpenny wrapped in a handkerchief and tied tightly over the wound will stop bleeding in any case, or a three penny may be placed over the spot where the blood issues, and then should be tied around tightly.

— Worth Remembering. —

There is one hint which should not be forgotten in these days of electricity accidents. In the event of a cable breaking, such as the overhead cable of an electric tramway, an ordinary tobacco-pouch becomes very valuable. The pouch

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should be a rubber one, of crescent-shaped variety, which is an admirable non-conductor of electricity. If the fingers are placed in one half and the thumb in the other, the broken wire may be safely handled and placed out of harm's way.

— How to Tell Counterfeit. —

At the present time there are a large number of spurious florins about in circulation and it becomes a matter of some importance to all of us to be able to detect bad coins. When the suspected coin is gently rubbed between the thumb and first finger it will feel rough if genuine; but if it spurious it will feel slightly greasy. By giving the coin a gentle bite, a slight crackling sensation will be apparent in the case of a spurious coin.

Possibly the most simple test for the detection of a bad coin, and decidedly the best, is that of sharply rubbing the milled edge of the suspected coin against the milled edge of a good coin. If the suspected coin happens to be spurious

the metal will begin to shave off immediately. If the coin grates it is all right. — 'Scraps.'

HOUSEHOLD HINTS

When blowing out a candle hold it high and blow upward, to keep the grease from running about.

* * * * *

When shopping where you are not known to the salespeople, don't wear your old clothes. You will secure more attention if well dressed.

* * * * *

Pure oil of turpentine mixed with one per cent. of oil of lavender is the finest of simple methods for purifying the air of a close room.

* * * * *

— A Delicate Omelette. —

Beat 6 eggs, the yokes and whites separately; melt a bit of butter in a teacupful of warm milk, to which add grad-

ually a tablespoonful of flour, a tablespoonful of salt, and a little pepper; then mix in the yokes of the eggs and lastly, the whites, beaten to a stiff froth. Bake immediately in a flat pan. Some ham cut fine makes a great improvement. Some persons like sweet herbs; others prefer some finely-shred onion.

* * * * *

— Escalloped Tomatoes. —

Take some sound tomatoes, drop them for a minute in boiling water; take them out and skin them; cut into slices about half an inch thick. Crumble up a few cream cracker biscuits and put a layer of crumbs at the bottom of a piedish. Drop some little bits of butter on to the crumbs and then cover over with a layer of sliced tomato. Sprinkle them over with a very little sugar; then another layer of crumbs and pieces of butter, followed by a layer of tomato. Continue in this way until the dish is full, with a layer of crumbs on the top. Pour in a little water to moisten and bake for half an hour in a moderate oven.

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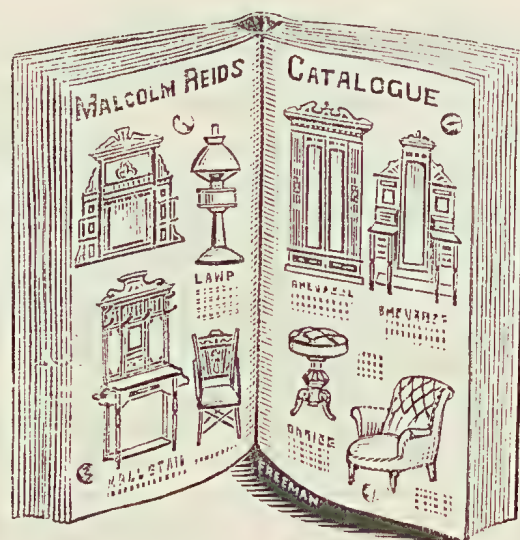
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WIT AND HUMOR.

— A Panto Riddle. —

"Why was Robinson Crusoe's man Friday like a rooster?"

"Because he scratched for himself and crew-so."

— From Dublin. —

A farmer had visited the horse show in Dublin. On his way home, he entered a chemist's shop and asked the assistant for a threepenny tablet of soap. The assistant asked him would he have it scented or unscented.

'Niver moind,' says the farmer, 'oi'll toike it with me.'

— Obeying Instructions. —

City merchant—'Did you deliver my message to Mr. Smith?'

Boy—'No, sir. He was out and the office locked up.'

Merchant—'Well, why didn't you wait for him as I told you?'

Boy—'There was a note on the door, 'Return at once' so I came back as quickly as I could.'

— Poor old Pa. —

Children are inquisitive bodies. For instance—

'What does 'c'eave' mean, papa?'

'It means to unite together.'

'Does John unite wood when he cleaves it?'

'Hem! well it means to separate.'

'Pa, does a man separate from his wife when he cleaves to her?'

'Hem, hem! Don't ask so many foolish question, child.'

— Which was right? —

Here is a good conundrum: An Irishman, a Frenchman, and an American were waiting for a train together. Soon one appeared in the distance.

'He is coming,' said the Irishman,

'She coming,' said the Frenchman.

'It is coming,' said the American.

Which was right? most people answer: 'Why the American, of course.' But no; the Irishman was right. It was a mail-train.

— Pat Again. —

'My dear,' said an Hibernian to his wife, 'I would rather the children were kept in the nursery when I am at home, although I should not object to their noise if they'd only be quite!'

— Sure Enough. —

Pat got a job moving some kegs of powder, and, to the alarm of the foreman, was discovered smoking at his work.

'Gracious!' exclaimed the foreman, 'Do you know what happened when a man smoked at this job some years ago? There was an explosion, which blew up a dozen men.'

'That couldn't happen here,' returned Pat, calmly.

'Why not?'

'Cos there's only me and you,' was the reply.

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March Number of

1910

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry).

IT CONTAINS—

Illustrations—

- Group of Bulbs.
- Amaryllis Formosissima.
- German Iris.
- Double White Pearl Tuberoses.
- Remarkable Pines, 22 years old, Wirrabra Forest.
- View looking West over Plantations E. and O., Bundaleer Forest.
- American Ash, 25 years old, Wirrabirra Forest.
- View near Saw Mill, Wirrabirra.

ANSWERS TO CORRESPONDENTS

EDITORIAL.

The Flower Garden—

- Notes for the Month
- Description of Flowers—
- Bulbs and Allied Plants.
- Amaryllis.
- Iris.
- Tuberoses.

A Pretty Garden.

- Novelties in Ireland.
- The Perfume Industry.
- Design in Garden Pathways.

The Vegetable Garden—

- Operations for the Month
- Irish Blight on Tomatoes.
- Tomatoes as Insecticide or Preventive.
- Melon Talk.
- Raising Herbs.
- Growing Topless Potatoes.
- The Best way to Dispose of Garden Rubbish.
- Giant Mexican Summer Spinach.

The Orchard—

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The Farm—

- Farming in England.
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The Poultry Yard—

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- Indian Runner Ducks.
- Poultry Brevities.
- Poultry Farming on Small Holdings

About Pigeons—

- Pigeon Homing—Notes for Novices

The Young Folks—

- The Friend of Man : Some Uses of the Dog
- IV.—Dogs and Carts
- Why a Collie Dog is so Called.
- What the Word 'News' comes from.
- What a Red Sky at Night Fortells.
- Conundrums.

WIT AND HUMOUR

The Ladies' Page—

- Household Hints

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Questions and Answers.

QUERIES.—Readers are invited to send us queries on any matters on which they want information. No charge is made for the insertion of questions, but the following conditions should be borne in mind. 1. One question only should be written on one sheet of paper. 2. One side only of the paper should be written upon. 3. Querists must forward their names and addresses (not necessary for publication).

ANSWERS TO QUERIES.—The queries sent us will be answered by men who know the subjects, but at the same time we shall be glad to receive answers to any published from readers who can give the information asked for. Our aim is to get our readers to help one another, and no one is better able to help a small gardener than another owner of a small garden who has gained experience in dealing with the many difficulties that have to be faced.

CULTIVATION OF CARNATIONS

W.D.R., Highgate.—Thanks for Carnation article; our readers will, we are sure, appreciate it. It was too late for this issue, but will appear next month.

TULIPS.

'La Belle', Goodwood.—Tulips will grow anywhere with plenty of shade and water.

* * * * *

SOIL FOR LEMONS.

'Starter', Croydon.—Lemon trees succeed best in rich, light, loamy soil. They should be given a warm situation in the garden.

* * * * *

PAMPAS GRASS.

M.E., Rose Park.—The secret of obtaining fine plumes of Pampas grass is a plentiful supply of water. The botanical name is *Gynerium Argenteum*.

* * * * *

TYING CHRYSANTHEMUMS.

'Amateur' Croydon.—It is usual to tie the plant to stakes. If this is adopted we should recommend iron stakes. They can be hidden by the foliage and will last for years. A better method is to run two wires along the length of the bed. The plants can be tied up in any fashion desired.

* * * * *

BEGONIA CULTURE.

'House' Wallaroo.—Begonia culture is not difficult. The soil should be sound loam, leaf mould and sand in about equal proportions. Make perfect drainage with shards of broken glass. When sowing the seed make the surface smooth, and immerse the pot in water for half an hour. Sow thinly and cover with a mere dusting of sand. Spring is the time for sowing.

* * * * *

CHICKENS DYING.

S. W., Halifax Street.—So many things may produce the symptoms you describe that it is extremely hazardous to give an opinion as to the complaint. First, however, look to it that the birds are not infested with chicken lice. These insects are the cause of 50 per cent. of deaths in chickens. If the lameness is the cause, rub the legs twice a day with Elliman's Royal Embrocation, as used for horses. What you are giving will

probably do them good by cleansing the blood, and helping them in refurnishing themselves with feathers.

* * * * *

PASTURE FOR PIGS.

'Experimenter', Paradise.—Rape is excellent pasture for pigs, as they thrive rapidly, and do not bloat or scour on it, as sheep are apt to do. But best results are obtained when the pigs are given grain, such as peas, maize, oats, &c., at the time they are being pastured on the rape. We think, so far as pigs are concerned you would get better results by allowing your maize crop to ripen, and feeding the grain to the animals. Lucerne is a splendid pasture for pigs, but both lucerne and rape are all the better for being supplemented by a ration of grain.

* * * * *

PRUNING BOX HEDGES.

'Yuno', Unley.—It is a mistake to cut box borders or pittosporum hedges during the hot, dry weather; it is better to wait until the cool autumn rains arrive. The box plant is hardy enough, but frost sometimes blacken the young growths of pittosporum undulatum. The other species used for hedge-making are natives of New Zealand, and are hardier than our native one. In districts subject to severe frosts, it is advisable to defer the pruning of hedges until, say, the middle of October, when the injury from frost is past. If pruned in the autumn, unless it be done very early in the season, young growths are immediately made, and these may suffer injury from the cold later on. When hedges are cut in the middle of summer, and particularly if the weather be dry, the plants are apt to get scorched, and look unsightly.

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STOMACH STAGGERS.

'Shepherd,' Brankworth.—The complaint which effected your sheep is commonly called "stomach staggers," and is really a temporary apoplectic condition of the brain, due to the stomach disturbance. Dry, indigestible fodder, fat condition of the sheep, and the driving are the causes. It is not of much practical value to attempt treatment when the sheep are attacked on the road; and, indeed, harmful results may follow attempts to drench them during the attacks. Prevention by more careful handling, and avoidance of undue harassing by dogs, would minimise the risk. If in very high condition, the sheep might be put on bare paddocks for a day or two before driving.

EDITORIAL.

AN old song became popular because of the refrain which caught the idea that "a policeman's lot was not a happy one." It might easily be altered to suit the producer on occasions when after a year's anxious toil and worry and planning and scheming he finds a continuous rain for days ruins him. In the districts where grows the luscious fruit of the vine the recent rain has practically ruined the crops as they hung on the vines. Even in the dry regions of the River Murray, where picking and drying had commenced, the rain stopped the process, and where sufficient housing

accommodation was not available the fruit was moulded in the trays. Such loss is disheartening to the producer, and one can readily imagine the sense of chagrin at his watching the beautiful fruit almost within the garnering boxes absolutely wasted. All he could do was to stand around and watch it waste. Such experiences bring about a loss of faith on the part of capitalists in risking their money in producing. No surprise need be felt at that, but it is a great pity, because the producer has many initial difficulties to contend against both in work and money arrangements. If the capitalist, generally the banker, loses faith under the stress of calamity brought about by the fickleness of climatic conditions, then the worker loses heart, and producing wealth first hand from mother earth receives a check which is difficult to recover. There is always a great source of satisfaction in the knowledge that producers have strong big hearts—even if at times their pockets are lean. It is indeed astonishing to see men start away to work after a ruinous conflict with nature just as if nothing had happened, with a sort of hopeless philosophy better luck next time. And so the world wags on, being fed by the men who toil and struggle with nature in her primal producing capacity.

A visit to the Royal Show in Adelaide and a tour of the Shows that are now being held all over the country would convince the worst cynic that the producing power under man's labor, skill,

and brains is not only a great reward after disappointments, but is also a great triumph, of which he may be justly proud.

No one need starve on an acre of ground and plenty of water. When the discussion was going on years ago during the beginning of the closer settlement and workmen's lots it became a famous saying that three acres and a cow would bring up a family. The bringing up would, under such conditions, be rather a drag, but there is no doubt they could keep alive. The argument from that is with a greater proportion of land and cows a very fair living can be obtained—with an equal proportion of toil. Anyhow, in spite of ruinous disappointments and battlings against adversities, there is a fascination about the land and all its possibilities that keep men there, and it is well that it should be so for all kinds of reasons.

Sooty or fly-speck fungus has made its appearance in some of the large orchards near Sydney. It greatly disfigures the fruit. As a rule this disease occurs in low-lying orchards, and attacks most varieties of fruit. It is controlled by spraying with Bordeaux at the first sign of its appearance. It may not display itself till the fruit has been picked, and placed in a cool storage. Then deterioration is rapid. It is said that this is the first time that the fruit in this district has been so attacked. One authority inclines to the belief, however, that it has existed for some years, but dry seasons were unfavorable to its development. The present season has been the wettest for 20 years.

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Perennial Larkspur—*Delphinium Hybridus*.

The Flower Garden.

Notes for the Month.

— Maintaining an Appearance. —

Continue to maintain an attractive appearance in the garden by unremitting attention in the matter of removing dying blooms, seed pods, damaged shoots, and all untidy matter. Beds and borders composed of herbaceous plants and annuals should have regular soakings of water, and the grosser feeding subjects should be frequently given liquid manure. Tie up up plants a fresh that have broken from their confinement or have outgrown the strength of the original stake. With these little attentions the garden should afford delight for another two months.

— Defining and Labelling. —

It is fatal to procrastinate in the matter

of noting the colors and especial features of the various Dahlias, Cannas, and other decorative subjects. Each should be clearly defined and labelled before they go out of bloom and are assigned their winter quarters, so that next spring there will be no mistakes made in disposing of them, and they can be grouped to the best possible advantage.

— Selecting New Stock. —

If ones collection is not sufficiently large and varied now is the best time to make a fresh selection at some nursery garden. It is much more satisfactory to have the order booked now than to leave it until the planting season arrives, when one has to rely on the florists' catalogued description, which, though helpful, is not quite all that we desire. The most important thing is to see a plant growing before we can judge of its suitability to

our own taste and surroundings. In the case of Dahlias, some varieties that justify glowing descriptions in the catalogues and are conspicuously handsome features of the flower shows are quite ineffective in the garden, because of imperfect habit and an irritating disposition to droop and conceal their blooms. Where the collection must necessarily be small it is advisable to exclude the dusky shades, and give preference to the bright showy varieties of Dahlias.

— Propagating Herbaceous Plant. —

During the month many herbaceous plants can be propagated. Amongst others, Hollyhocks, Pentstemons, Antirrhinums, and Gaillardias from seed, Petunias, Fuchsias, Verbenas from cuttings, Calceolarias by offsets and cuttings.

— Pansies. —

Seeds of Pansies sown in January and February can now be transferred to the open border. The soil should be well dug and enriched with manure before planting them out. They like best a well manured sandy loam.

— Hardy Annuals. —

Sow seeds of the following hardy annuals to come on in the early spring and summer: French and Shirley Poppies, Lupins, Phlox Drummondii, Lobelia, Nemophila, Stocks, Virginian Stock, Larkspurs, Delphinium, Minor, Convolvulus, Sweet Sultans, Cornflowers, Eschscholtzia, Codeopsis, Candytuft, Dianthus, and D. Barbatus, Gaillardia, and G. Lorenyana.

Sweet Peas.

Sow Sweet Peas also this month in a well manured, deeply dug loamy soil. They should be sown in trenches to admit of their being earthed up at various stages of their growth. Autumn sown Peas make a much stronger root than those sown in the spring, and come in to flower much earlier. Additional sowings can be made in the early and late spring, and thus a succession will be provided for.

— Bulb Planting. —

March is a month very commonly chosen for bulb planting. Those who have left that operation until now should proceed without delay. It is not advis-

able to plant Narcissus bulbs promiscuously in the borders. They dislike the heavy dressings of manure that the latter must have, and the constant soaking of water in summer is more or less injurious. Moreover they are greatly in the way of the autumn cultivating, and hinder the progress of the spade. Bulbs, more especially the Narcissus, should be relegated to the kitchen garden or rear garden. The blooms may be a temptation to the 'bottle boys' and similar visitors, but happily we can protect ourselves from such depredations by picking the flowers in the full-bud stage, allowing them to open indoors. In allotting them a space to themselves, we can have full control of the soil, and can renew it with little difficulty as often as the health of the bulb requires it; in most cases every two or three years. The soil should be deep, and pure. Black sand is favorable and an admixture of sea sand is said to be very acceptable to the bulb. If a soil is made for them with manure it must first have all its stimulating properties taken out by some gross feeding crop. It will then be in a condition to receive the bulbs. A cool subsoil is of the greatest importance. The rule in planting bulbs is three times their own depth in the soil, but it is better err on the side of deep than shallow planting in this climate, except perhaps in the case of a heavy soil. When it comes to making a selection of Narcissus for planting it is a more difficult matter. The varieties of the Daffodil section especially are so numerous and beautiful as to be bewildering. Daffodil shows have their uses in familiarising us with the various types and helping our choice. It is always as well to note on those occasions any that seem to recommend themselves to our individual tastes. Another good way, though, perhaps, a little more extravagant, is to buy pots of flowering Narcissus that the florists offer in the season; then we know exactly what we are getting. This is advisable, more especially in the case of choice varieties. They can be transferred from the pot to the bulb bed without their ever feeling the removal.



Amaryllis Formosissima.

Modification of Colours in Plants.

Professor H. Kraemer, in reviewing the work that has been accomplished in the control of color in plants, referred to the factors which influence the color in flowers and gave the results of his own experiments, which were begun in the Autumn of 1904, and have been continued up to the present time. Various soils were experimented with, including an artificial soil, and sand to which a special nutrient was added. The chemicals used to modify the color principles were supplied to the plants in the form of solutions of varying strength, or added to the soil in solid form, solution gradually taking place. Probably the most striking result obtained by the use of chemicals was the production of a red color in the petals of the white Rose, Kaiserin Victoria. The red occurred in the basal portion of the petals, and was produced in the flowers of plants which were supplied with potassium hydrate, potassium carbonate, calcium hydrate, and lead acetate. Blue flowers were produced by the red-flowering form Hydrangea (H. Otaksa), growing in both sand and garden soil, when supplied with potassium and aluminum sulphate, and calcium hydrate.

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GROUP OF BULBS.

Description of Flowers.

BULBS & ALLIED PLANTS.

Among the beautiful garden ornaments Providence has supplied to us, easily obtained and increased, in this climate generally hardy, or requiring very little cultivation, occupying but little room, at their best when other flowers are comparatively scarce, of all forms and colors, and many of exquisite perfume, why is it so few are grown? Universal favorites, it cannot be they are not admired—our flower shows prove the contrary—nor can it be their price places them beyond the reach of only flower lovers. But whatever the reason is, the fact remains that, excepting a few of the common sorts, bulbs in this state are very little grown. This ought not to be, for much of the beauty and interest of our gardens is derived from bulbous plants, and with a small but judicious first outlay sufficient may be obtained to give our gardens a gorgeous appearance for at least six to eight months of the year. Excepting a few of the choice kinds they will grow, flower, and increase in ordinary garden soil, and require little, or no cultivation, excepting, of course

such as are required for exhibition or special purposes.

One writer says:—‘There is a peculiar charm about bulbous plants arising partly no doubt, from their peculiar sweetness and beauty, but chiefly, perhaps, from the mystery of their lives—they bloom, fade and retire underground. Like sensible visitors, they come when wanted and far rarer merit still, go when not wanted; they hide away as soon as their beauty fades, and are no more seen till a new life of verdure, beauty, and fragrance bursts forth when and where most wanted. The temporary rest of the bulb is also most favorable to its transportation to a new place; it invites removal, and renders it safe and easy.’

For many of the best known and most popular bulbs such as Hyacinths, Crocuses, some of the Liliaceae and Amaryllids, Pæonias, Funkias, Snowdrops, Crinum, Clivias, Nerines, Tuberoses, Tropæolums, and a few others our climate is certainly trying, but most of them succeed in carefully prepared ground, if taken up after they have flowered, and the bulbs stowed in a cool room, or they do well in



GERMAN IRIS.

a shadehouse; but Narcissi, Irises, Gladioli, a few of the Amaryllids, some of the Liliaceae, Tulips, Ranunculi, Anemones, Snowflakes, Babianas, Ixias, Tritonias, Scillas, the Agapanthus, Alliums, Antholizas, Lachenallias, Moreas, Ornithogulums, Oxalis, Watsonias, &c., are so suitable that they may with safety, or even advantage, be left in the ground for years.

No hard and fast rule applies to how deep to plant the bulbs, but the following practice is usually adopted:—Scaly and solid bulbs should be planted deep say from four to six inches, but tunicated or coated bulbs may be planted shallow, almost on the surface, or half buried.

— THE IRIS. —

The Iris (Fleur de Lis of the French).—Of unique appearance, almost rivalling the Orchids in their gorgeous colors, few flowers are more showy or pleasing. Indigenous to various parts of Europe, Asia, and Africa, that family is a large one, the most popular species being the English, Spanish, and German, although *Kæmpferi* (comparatively new) is the largest, and possibly the most handsome, growing to the

height of 3 ft., with flowers 5 to 7 in. across. *Susiana*, growing to the height of 2 ft., and producing flowers of immense size, greyish blue, netted and veined with dark chestnut, is most noble and striking. *Pavonia* (the *Vieusseuxia*, or Peacock Iris), white, with a bright blue spot on each petal, is exceedingly pretty and novel, and charmingly effective in bouquets, vases, &c.; well worthy of a place in every garden.

— THE AMARYLLIS. —

The *Amaryllis* (derived from a Greek word signifying splendor) includes some of the most richly beautiful of all plants. The family is large, and contains superb specimens. They are easily grown, but many of them are better suited for pot culture than the open border. Some of the most desirable are:—

Belladonna with its fragrant silvery rose flowers; produced in autumn, when ordinary flowers are scarce.

Ciliaris (*Buphane*—*Venus' Lily*).—Orange.

Falcata (*Ammocharis*).—Rose.

Gigantea (*Brunsvigia Josephine*), the *Candelabra* flowers.—Crimson.

Incarnata (*Coburghia*).—Orange Red.

Purpurea (*Vallotta* or *Scarborough Lily*).—Deep blood red.

Purpurea Major.—Similar to above but a little larger.

Formosissima (*Sprekelia*).—Dark scarlet.

Although expensive bulbs, they make a grand display, and are well worthy of cultivation.

— TUBEROSES. —

The *Polianthes* (*Tuberosa*) with its tall spikes and sweet perfume cannot be overlooked. It is only of late years this plant has attained its great popularity. In the hill districts, or for greenhouse, frame, or shadehouse, it is a treasure, but is scarcely suitable for open border on the plains; unless it is in protected situations and well supplied with water. For cut flowers it is most useful, as like the *Gladiolus* the smallest buds will open in water after the spikes are cut (Illustrated).



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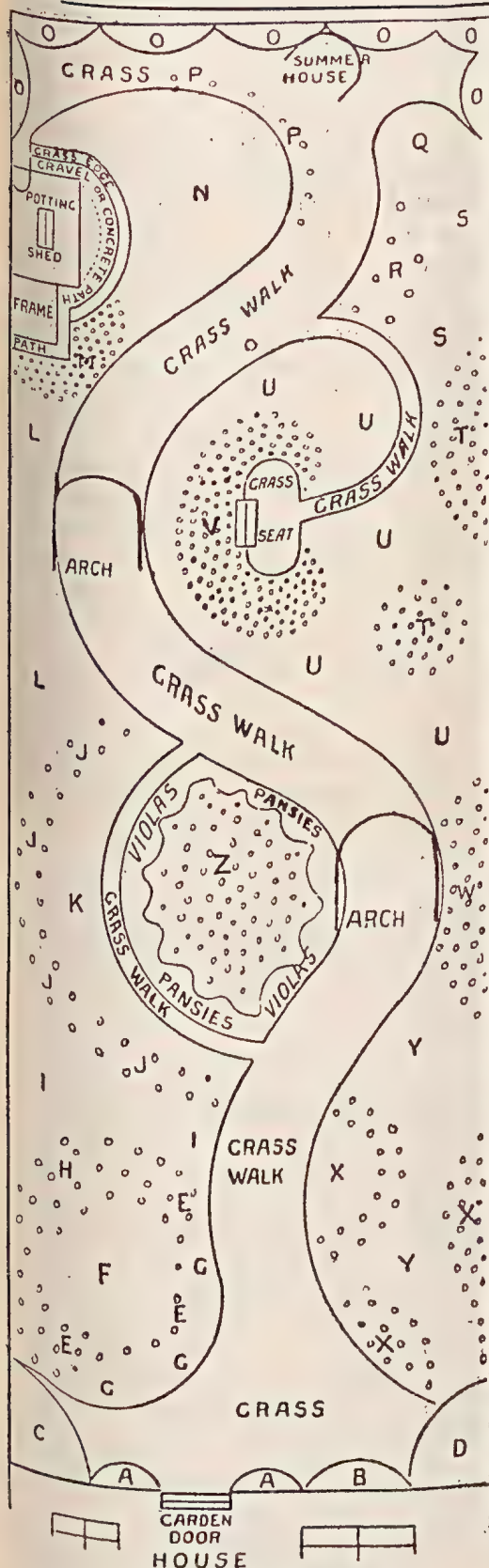
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A Pretty Garden

A correspondent writes:—I was greatly interested not long ago in seeing a charming flower garden that occupied only a long narrow strip of ground. In all but one instance the paths were of

turf—the exception to the rule being a walk of concrete enabling the gardener to get all round the potting shed and frame. The wide grass walk down the garden gave it a delightful eye restful effect and showed up the beauty of the shrubs and flowers far better than gravel; it was merely a portion of the original field improved by cultivation, and, owing to its simply rounded outlines, was probably little trouble to keep cut and trimmed. At the mouth of this walk a winding took place into a small lawn that came right up to the garden door of the house, and to some round beds beneath the window. Of these beds, those marked A, were of Narcissai and dwarf Tea Roses; B, of Hayacinths, Pinks, and Hybrid Perpetual Roses; C, of Rambler and Polyantha Roses; D, of Ampelopsis Veitchii up the walls, Foxgloves, Honesty, Solomon's Seal, Vincas Pansies, and Primroses, with ferns in front. The other walls—those of the house—were Clematis covered.

The left hand border bed where E's are marked, contained more Roses, with Delphiniums, Oriental Poppies, and Chrysanthemum maximum and other white daisy-like Chrysanthemums at F; Violas at G; and the sheltering group of shrubs H, were merely Laurels, Aucubas, and others. It is seldom that Laurels are made so servicable as in this case, where they formed a screen from the cold winds.

The ground I, between the Laurels and a semicircle of double and single Hollyhocks; J, was given up to varieties of Sunflowers; tall perennial Helianthus occupied position against the red brick wall, dwarfier varieties, double and single, came next to these, room being left for the addition of annual; then small specimens, including those good for cutting, come down to the very edge of the grass.

At K Aquilegias, Wallflowers, Tulips, Iceland Poppies, Montbretias, and a Carnation collection kept the ground gay during the spring and summer months I was told, and the Viola edge was continued next the grass. At L Roses, an ancient Gloire de Dijon especially, rambed

up the walls, and Dahlias, early Chrysanthemums, an Narcissi occupied the rest of the space. A group of Rhododendrons at M hid the frame and the path around it, without obstructing the light and air too much; N, was a real herbaceous bed, made up of all the useful perennials, both tall and dwarf. The beds O around the end lawn were gay with Geraniums of different sorts, and Tulips and Hyacinths had been in them earlier. Eight standard crimson Roses, L, at the edge of the grass, gave the occupants of the summer-house something pleasant to look at.

At Q early Chrysanthemums, Phloxes, Myosotises, and Spanish and German Irises were mingled; a group of mauve and white Lilacs was at R; while Delphiniums rose up at S, among a good assortment of Machaels Daises tall and dwarf, which were of course, not flowering, when the perennial Larkspurs were out.

T's shows two other clumps of Rhododendrons, and where U's appear bedding plants were employed to keep the scene beautiful, following spring bulbs; at V the humble Laurel again proved its efficacy as an attractive living screen, sheltering the seat upon the grass plot. This seat it should be noticed, faced full sunshine, whereas the summer-house looked towards the colder quarter, thus resting places were provided for both winter and summer use.

W, distinguishes a shubbery composed of Syringa, Hawthorns, a Cistus, Viburnum, American Currant, Darwin's Berberis, Symphoricarpus, Golden Broom, White Broom, Golden Elder, Laurustinus and some Hollies. X, against the wall, shows the positions of Rambler Roses, with a few of the good old-fashioned Provence, Cabbage, Moss, and China Roses made a charming show, encircled, Y, by low-growing perennials in great variety.

It remains only to state that the chief rosery at V had numbers of Liliums also in it, and a waved border of Pansies and Violas; while one arch was covered by Clematis Jackmanii and Winter Jasmine, the other by White Jasmine and a Crimson Rambler.

Novelties in Ireland.

At Killarney, Ireland, is a holly-tree said to be the largest in the world. Its stem measures 15 ft. in circumference. It is still in its prime. Close by this famed holly is a most remarkable combination of four trees, viz., hawthorn, ash, holly, and ivy, so interwoven as to appear as if produced from one stem.

The Perfume Industry.

A few generations ago the suggestion that the making of perfumes could ever become a vast industry, giving employment to many thousands of persons, would have been scouted as absurd; but the present position is this. In France the value of the perfumes produced is over a million pounds a year; in Italy, it is half a million; in Bulgaria it is not far short of a quarter of a million, derived chiefly from the sale of attar of roses; and in Japan, India, the United States, and elsewhere throughout the world, it amounts to a considerable sum.

Design in Garden Pathways.

A peculiar virtue attaches to a stone-paved garden in that it is accessible at all seasons and in all weathers. Stone differs from turf in that it sheds, rather than absorbs, moisture, so that while the dew is yet heavy upon grass one may pass over paved walks dry-shod. In most gardens there are generally positions which lend themselves to the introduction of stone-paved ways. Pergolas and terraces are instances, as both are largely frequented, and the former often fails in yielding the essential conditions which go to produce good turf; so that the stone pathway offers the happiest and most lasting means of egress to this part of the garden. Terraces, where adjacent to or leading from the mansion, always gain in effectiveness and comfort when so laid. Then in gardens of a formal or geometrical character the inclusion of a stone paved area gives much of the

quaintness and character of an old-world garden.

The happiest ideas in the use of stone pathways are often obtained in these old gardens. One such that comes to memory has a central area occupied by an oblong tank containing water, in which a selection of the rarer varieties of hardy Nymphaeas are cultivated. The margin of the tank is formed of hewn stone, and is continued so as to form a broad pathway round the water area. Beyond this a space of 18 feet or more is laid out and planted as a mixed border; to which a background is provided in the form of a rough wooden screen lavishly clothed with Rambler Roses. The border which constitutes the south side has a luxuriant growth of hardy Ferns, among which are planted considerable quantities of early-flowering hardy bulbs. Each season has, therefore, something to awaken interest—in spring, bulbous flowers for the opening year, succeeded by Nymphaeas to bejewel the water's surface during summer and autumn, while the same seasons witness the stately occupants of the borders adding their wealth of gorgeous coloring to what one may fittingly regard as an enchanted scene. Between the borders and the water lies the old stone pathway with its quiet, restful tone of neutral grey, on the one hand emphasising the refined character of the Water Lilies, on the other disarming what is harsh or discordant in the border.

Even in quite small areas there are, at times, opportunities where the judicious use of paving-stone will largely augment the interest and beauty of the garden.

The primary use of stone paths is to provide comfort when walking; but the true gardener, seeking new spheres of conquest, decks them with floral treasures and thereby invests them with an added mission; so that they become virtually flowery pathways leading to other scenes and newer interests.

—Thos. Smith, in 'The Garden.'

Lord Roseberry on the Gardener.

When opening a flower show in Great Britain, recently, Lord Roseberry made a brilliant address which, it is to be regretted, we cannot find space to give in full. His apostrophe to the gardener is deserving of being perpetuated; here it is:

* * * But I do think the gardener, by the nature of his occupation is, or should be, physically and intellectually and morally the best of our rural population. He leads, from a physical point of view, a life which keeps him always in the open air. He is daily and hourly face to face with the elevating mystery of Nature. He has the closest intercourse with our mother earth.

Without the incessant labor of the plough his task is to explore and to watch all her secrets. It is his duty to deal in turn with all the miracles of Nature—the bud, the flower, and the fruit. He is the first to see the opening leaf and the first green spike that pierces the mould and then when the weather fails, and when all is too inclement for other pursuits, he is able to devote himself to the preparation for another year, in the sure and certain faith that the miracles of Nature which he has witnessed in current year, will recur in orderly but miraculous rotation in the coming Spring. Ladies and gentlemen, no one can fail to see, who appreciates the daily task and toil of the gardener, that there is none that can or should raise the nature and the mind of man so completely as his, and, therefore, believing, as I do, that under the circumstances they are and they must be the best of our rural population. If I were a ruler, which thank Heaven, I am not, I would do all I could to multiply and increase such men, for I should feel that by so doing I was best serving the interest of the rural parts of our country. I would take off my hat if I had not already taken it off to the character of the gardener. It is for that reason I am glad and proud to be here today as well as to see my neighbors again. I am not sure that I appreciate as scientifically, or even as much as some of you the abnormal flower and the swollen fruits; but at any rate I have gone with an ignorant curiosity throughout the whole exhibition, and in opening it I can commend it earnestly to your attention as well worthy of your study and worthy of our delightful neighborhood.

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Swede Turnip.—Purple Top.

Turnip.—Early Stone, Golden Ball, Snowball, Orange Jelly,

Early Six Weeks, Purple Top.

Red Beet.—The best Turnip and Long sorts.

Scotch Kale.—Tall and Dwarf.

Radish.—American Knickerbocker, Cardinal, Crimson Giant.

Early Peas.—Lightning, William Hurst, American Wonder, English Wonder, Early Sunrise.

Onion.—Brown Spanish, Brown Globe, White Spanish.

Lettuce.—Malta or Drumhead, Neapolitan, New York, White Paris Cos, &c.

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About Vegetables.

The Kitchen Garden.

—:o:—

Operations for the Month.

— Seed Sowing. —

Seeds of any of the following may be sown during this month :—

American Cress
Broad Beans
Broccoli
Brussels Sprouts
Cabbage
Carrots (early sorts)
Cauliflower
Celeraic
Celery
Chervil
Corn Salad
Cress
Endive
Herbs (various)
Java Radish
Kale
Kohl Rabi
Leek
Lettuce
Parsley
Parsnips
Peas (early sorts)
Portugal Cabbage
Radish
Rampion
Rape
Red Beet (Long and Turnip)
Salsify
Savoy
Scorzonera
Sorrell
Spinach
Turnips
White Beet

— Planting and Transplanting. —

Plant early Potatoes; also Potato Onions, and Tree Onions.

Transplant Cabbage, Cauliflower, Celeraic, Celery, Chives, Herbs (various), Horse Radish, and Lettuce plants, and Mushroom Spawn.

— Cultivating Vacant Land. —

All vacant land should be prepared during this month for winter and spring crops by a thorough digging, trenching in the case of new land, and heavy dressings of rich manure. This done, the soil should be thrown up that the weather may act upon it, and that it may benefit to the fullest extent from the autumnal showers.

— Transplanting. —

Where the soil is moist and can be kept so young plants of cabbage, cauliflowers, and celery can be put out. They should be well watered and mulched after transplanting. To water the little plants previous to removal and to lift a good ball of earth is the safest way at this season.

— Weeds. —

The hoe must be kept going continually to check weeds.

— Lettuce. —

Young lettuce plants can be planted out in a rich, well-prepared soil, and where they can be kept moist as long as the warm, dry weather continues. Sow fresh seed for succession.

— Tomatoes. —

Thin out the foliage of tomatoes, and keep the lateral shoots pinched off. As autumn approaches they will want all the sun they can get to hasten their ripening. Keep the soil around them moderately moist.

— Potatoes. —

As the tops of potatoes wither they should be dug up and stored in pits or cool, dark cellars. Make a fresh planting of potatoes in a sheltered position.

— Keep up Appearance. —

Keep up a trim and tidy appearance in the vegetable garden, and remove old haulms and all untidy matter to the rubbish heaps.

Irish Blight on Tomatoes.

Mr. D. McAlpine (Vegetable Pathologist of the Victorian Department of Agriculture) reports that the end of November he received from the Fruit Inspector samples of diseased tomatoes obtained from a line of 26 cases imported from New South Wales. The blossom end of the fruit was of a dirty green color, mottled with brown. The flesh beneath the discolored skin was of a brown, rusty color. After being cut for some time the fruits developed a rotten, disagreeable smell. On placing slices of diseased tomatoes in a moist chamber, the fructification of Irish blight developed luxuriantly. That the fungus is the same as that causing disease in potatoes was proved conclusively by inoculation experiments. A healthy potato inoculated with spores from the diseased tomato developed Irish blight, and from blight affected potatoes the disease was conveyed to healthy tomatoes. In Great Britain heavy losses in tomatoes from Irish blight are sometimes experienced, and in New Zealand losses have been severe. Tomato-growers in this State should keep a careful watch for signs of this disease.

Tomatoes as Insecticide or Preventive.

French horticulturists are recognising the value of the tomato as an insecticide, as appears from several instances cited by the *Revue Horticole*. M. Boucher, the well-known nurseryman of Paris, prepared a decoction of the leaves, with which he sprayed Peach trees infested by green fly, with the result that the pests were destroyed. The solution, therefore, acts much in the same way as a nicotine solution would, with the advantage of being considerably cheaper. Another correspondent of the *Revue*, M. Berlou of Saint Quentin, writes to confirm the observations of M. Boucher, and describes his own method as follows: 'For several years I have planted at the foot of each of my Peach trees, of which I have about twenty, a Tomato plant, which is never pinched, and which twines up into the tree. I never have green fly. I also set out some Tomatoes around beds planted with beans, with the same good result.'

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Raising Herbs.

The best way to raise a stock of herbs—such as sage, thyme and marjoram—is to procure a few plants and propagate them by divisions or cuttings. Seeds of several herbs, including those mentioned, are procurable from Adelaide seedsmen and may be raised with little trouble, but are some time coming to maturity. They would require careful culture during the first season. Old plants may be divided during autumn and planted in rows to admit of horse or wheel hoe cultivation if a quantity is required. The land should be well drained and well worked and manured before planting. A moist but sweet situation is most suitable.

Growing Topless Potatoes.

One gardener near London has for years grown Potatoes without tops, the tubers being cultivated in a cellar. The culture is simple enough. Tubers of the present season's harvest, if kept cool and in the light will not break into growth very soon. When they do the shoots should be rubbed out and, as fast as they are reproduced, they must be removed. Place in a dark cellar on the surface of some light soil or fibre and slightly dampen them. If any further leaf growths appear, which is unlikely, rub them out. As a last resource the old tubers will commence to produce tubers which swell fairly rapidly. Often these tubers are produced inside the old ones and are not visible till the new one bursts through, but the majority are formed upon strings issuing from the eyes of the old tubers.

T.A.W., in 'Florist's Exchange.'

The Best Way to Dispose of Garden Rubbish.

The burning of garden rubbish is the best plan both for the sake of tidiness and economy, the ashes forming a valuable plant food. The method of digging the rubbish into the ground is not to be recommended unless trenching is being

carried out, when the rubbish may be placed in the bottom of the trench. No wood or prunings should be buried, as these are liable to start the growth of an injurious fungus. Finely sifted ashes from the smother fire are used with advantage for covering the seed of Carrots, Onions, and other plants. After sowing the seed cover with a layer of the ashes before filling in the drills with a rake. Dry ashes are best for this purpose and a quantity should be sifted and placed under cover. Heavy soils which have been dug in the autumn are much improved by the ashes being forked into the surface when preparing them for sowing or planting in spring. For the fruit quarter these ashes may also be used with most beneficial results. In all cases where a fire can be made, burn the rubbish and return the ashes to the soil.

Giant Mexican Summer Spinach.

Prof. R. de Noter, of Bondy, France, is introducing this novelty after having had it under his observation for three years, and it is considered by him as a plant of extraordinary value, from a fourfold point of view, namely: 1, as a vegetable and fodder; 2, for its seed; 3, for the manufacture of paper; and 4, for the extraction of cellulose, says the 'Revue de l'Horticulture Belge.'

1. As a vegetable it has found favor with all who have tested it, and who pronounce it to be superior to garden Spinach, being finer and more pronounced in flavor. It does not run into seed. The abundant pickings of the leaves may be also used as fodder for sheep, which eat it greedily. Being rich in vegetable iron, it provides excellent nourishment for delicate and anæmic stomachs. It thrives even in places where ordinary Spinach runs into seed, and grows to a height of about 8 ft.; its thick leaves are 12 in. by 14 in.

2. The food value of its seed is also considerable. Chemical analysis has shown that the seed is richer in the nutritive organic elements than wheat,

rice, oats, or corn, and more easily digestible on account of its large percentage of protein. A most promising addition to man's dietary, it may also be used for feeding cattle.

3. The tall, solid, flexible and fibrous stems are adapted to the manufacture of paper.

4. Chemical analysis shows 30 per cent. of cellulose, promising excellent returns to the manufacturers of paper and cellulose.

The cultivation of this legumino-cereal is easy and the harvesting may be done within four months. It requires a well-manured soil; the seed should be sown in furrows 2 ft. apart, with 12 in. to each plant.

The estimated net profit on a hectare of land (roughly 2½ acres) is estimated to be about \$260, equally divided between the harvest of the fresh leaves, either for market or as sheep fodder; of the seed, and of the dry stalks left after the first have been gathered. Even if only one-half of this sum were netted, it yet would exceed the net profits of a hectare of wheat.

Melon Talk.

Melons are making good progress. The fruits of the rock varieties, as they advance in size, should be lifted from off the soil and placed upon pieces of slate, or bricks, or wood. This prevents any earthiness of flavor, and hastens ripening.

Marrows should not be allowed to attain any size. The flavor of the fruits when small is very superior to that of the more matured article; besides, if the plant is permitted to mature its fruits, there will be no succession of crop. The same remark applies to squashes and gourds.

Should mildew attack these plants, no time should be lost in dusting the vines with flowers of sulphur.

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**The Orchard.****Notes for the Month.**

— Care of Stored Fruit. —

All fruit that is being stored must be gone over frequently, so that any showing signs of decay may be promptly removed. As the fruits ripen the atmosphere requires to be slightly drier. Apples and pears should not be allowed to ripen on the trees where they are at the mercy of every gale, but should be gathered when perfectly dry, and stored until ripe. The fuller the fruit room the better it must be ventilated. The various fruits soon exhaust the essential properties of the atmosphere, and cannot come to perfection unless a constant supply is kept up.

— Summer Pruning. —

Continue to thin out the shoots of the fruit trees where they are still too crowded to admit the sun, light, and air to perfect next year's growth.

Enable late peaches to ripen quickly by a judicious thinning of the crowded shoots and such growth as is unduly screening the fruit.

— Watering. —

Water must only be given to the trees in sufficient measure to perfect the root and wood growth for next year, and to sustain the leaves until they fall. Excessive dryness is injurious to the trees, as it causes the leaves to sere and fall prematurely. On the other hand, an abundance of water would tend to promote rank, useless growth.

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— Keeping Orchard Clean. —

Clear away all fallen fruit to the rubbish heaps, and on no account allow it to rot in the orchard.

— Have your Land in Readiness. —

All land intended for planting should now be got into readiness for the autumn cultivating. A large stock of manure should be already in reserve for the purpose, and it should be collected at once and got into the right condition for digging in. Land hitherto unreclaimed must be cleared of trees, stumps, bushes, and noxious weeds. Burning is the safest way of getting rid of these nuisances. The ashes are always valuable, and the hot embers sprinkled about will further help to cleanse the area. By all means take this opportunity of making a clean sweep of all impurities; never again will such an excellent one offer itself. A poor, shallow soil should not be chosen for fruit trees, but if it is not a matter of choice it must be enriched and deepened. If a good soil is provided to a depth of from 18 in. to 2 ft. it may be regarded as practically permanent, very considerably simplifying future operations. Grade the land and get it as uniform as possible. The subsoil should be thoroughly broken up, so that it will not remain an inert mass, forming a barrier to the roots, and preventing these from benefiting from the permanent moisture which exists below. Where it is broken up in the first instance the roots when once established will keep it open and provide a free passage for this moisture to pass upwards through the soil. Everything should be done at the outset to encourage a deep root system in this climate. Plough the soil lightly, so that it may benefit the exposure to the weather until the time arrives for it to have a thorough working in the autumn prior to planting.

— Strawberries. —

Trench deeply all ground intended for strawberry beds, taking care not to bring the clay or heavy subsoil to the top. Enrich the soil with heavy dressings of decomposed manure. Select well-rooted runners. Choose cool, dull weather for this planting with a good ball of soil. Give the beds a good soaking of water.

— Attention to the Vines. —

Table grapes are plentiful in March, and will be in demand as long as the hot weather continues. All cultural operations should be directed towards hastening the ripening of the fruit, in order that the grower may be able to put them on the market before they pall on the public palate. Keep the soil free from weeds, sweet, warm, and just sufficiently moist to sustain growth. The grapes do not want the fierce rays of the sun to fall directly on them, nor a blistering nor harsh wind to play upon them, toughening the skins. These should be tempered by the surrounding foliage, a mere film, as it were screening the fruit. Thin the shoots and leaves with this object. Continue to pinch out unnecessary laterals, and firmly secure all growing shoots required for next year.

Gather the grapes when perfectly dry, handling them as little as possible, so as to preserve the bloom. Take care that the appearance of each bunch is not marred by faulty berries.



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One pound of Paste makes 30 gallons of Spray.

No Lime Required.



W. GILL,] Remarkable Pines (*Pinus insignis*), 22 years old, Wirrabarra Forest. [PHOTO

Fruit Culture in Japan.

In a book just published on the above subject, some strange statements are narrated. Plum trees are watered with saline as a preventive of fruit-casting. Packets of salts are often buried near the trees, and the author suggests that it may be that the salt acts osmotically, and thus creates a condition of dryness in the roots, which is known to prevent premature dropping of the fruit. Oblique cuts are also made on the bark to check a superabundant flow of sap when fruit is ripening. The system of growing fruits on a kind of pergola is largely practised, for the accessibility of the fruit and protection from sudden storms render this method very suitable for growing the choicer pears, &c. An example of this system, called tanazukuri, upwards of a hundred years old, is said to exist near Tokyo. Fruit in Japan has been regarded more

as a sweetmeat than a necessity. Of the kahkis, or date-plums, about 800 varieties exist at the present day. Peaches and nectarines, both local forms and introduced varieties, are largely cultivated. Plums are produced in large quantities, one village marketing 690 tons, which sold for £400.

Fruit as a Remedy for Gout.

While the staunch vegetarian holds strong views with regard to a diet of fish, flesh, or fowl being more or less poisonous to the human system, the fruitarian does not regard with special favor the fare which the former individual considers indispensable to health. To fruitarians uncooked fruit is the only natural food, and they put their views into practice by limiting their diet to fruit. The chief opponents to an exclusively fruit diet have been the

medical men, who contend that such a diet is not suitable in a cold country such as the United Kingdom. With regard to gouty persons, they have long contended that, in the case of persons suffering from gout, the liberal use of fruit is attended with considerable risk, and some have asserted that the consumption of fruit has a tendency to develop the disease in healthy persons. Now the pendulum shows signs of swinging the other way, and we shall not be surprised to find in the medical journals a strong advocacy of a diet of sylvan simplicity. One medical man has already declared that he has frequently cured gout with grapes and oranges, and he declares that his advice to gouty patients is 'Eat plenty of fresh, ripe, uncooked fruit.' While the prices of fruit assist in the elimination from the system of gouty tendencies, the fact must not be overlooked that the consumption of fruit in large quantities may prove injurious to



W. GILL,]

View Looking West over Plantations E. and O., Bundaleer Forest.

[PHOTO

patients who have for any short period regarded the juicy pear and luscious grape as articles of diet to be carefully avoided. We are, therefore, strongly of the opinion that in making a change in the diet for the purpose of giving a place to fruit, it is advisable to proceed slowly. There can be no question whatever that liberal supplies of fresh cooked and uncooked fruit are highly beneficial, but extravagance in eating fruit, as of other articles of food, should be avoided, for excesses are not only likely to prove injurious to those who indulge in them, but they bring the fruit into undeserved disrepute.

The Value of Fowl Manure.

The droppings from domestic fowls are often undervalued, but properly treated they are of considerable importance to all those having a garden. They are generally

gathered in small quantities, hence they are not much thought of, but they constitute a manure rich in soluble constituents, corresponding somewhat to the guano of the second grades.

In former times, says a writer in the 'Gardeners' Chronicle,' when fowl rearing was more common than at present, the value of their dung was better appreciated. The ancient Romans particularly praised their pigeon-dung; they gathered it in large quantities, and utilised it, especially for fruit-trees.

As is the case in respect to other domestic animals, the richness of poultry-manure as a plant stimulant depends largely upon the character of the food the fowls consume. When they eat many insects and worms, or are fed with bonemeal and meat refuse, their voidings are much richer than if fed on grain or vegetable matter exclusively. Like wise if pigeons are fed largely with peas, lentils, or vetches, their manure will be correspondingly rich

in nitrogenous plant-food

Dr. Goff, who has experimented with domestic fowls, advises feeding them with all the fresh ground bone they will eat. The result will be that their droppings will not only be richer for manuria purposes, but the value and number of eggs will be greatly increased. An analysis shows that the dung from bone-fed fowls was about three times richer in phosphoric acid and six times richer in nitrogen than the dung from the ordinary fed fowls. Poultry manure is an exceedingly valuable fertiliser. The richest manure comes from fowls and pigeons. Geese eat grass, and both ducks and geese drink large quantities of water.

Remarks have been made that poultry manure poisons plants to which it has been applied. This is simply because used in excess. It should be applied in moderate quantities only at a time, and for preference used in the spring, and not dug too deeply into the soil. It must be



W. GILL,] American Ash (25 years old), Wirrabarra [PHOTO
Forest (Autumn View).

remembered that young and delicate plants are more often injured in the spring months by too much stimulant manure than by too little. Small dose frequently repeated should be the rule for early crops. This also prevents waste of plant-food.

Plants growing in pots are frequently starved to death for the want of sufficient food, owing to their limited soil area, and to the frequent waterings rendered necessary; hence the value of an occasional sprinkling on the surface of the soil of

dried and pulverised manure. The dung may also be employed in making soil composts for potting purposes.

Day and Night Growth of Plants.

In the 'Journal of the National Horticultural Society of France, for June, 1909, Messrs. Nombrot & Bruneau record some very interesting observations on the growth of pear scions grafted on estab-

lished trees of both pear and quince. The shoots were measured each morning and evening, and it was shown that there was practically no difference between the amount of growth made during the night. Other things being equal, the greatest growth takes place during cloudy weather. Pinching back has a decided tendency to delay the ripening of the twigs.

San Jose Scale.

In the division of Biology and Horticulture report for 1909, issued by the N.Z. Department of Agriculture, Mr. T. W. Kirk, F.L.S., Government Biologist, has the following to say anent the San Jose Scale, which will be read with interest by local orchardists:—

During the past few years no insect has gained such an unenviable reputation as the San Jose scale, owing to the immense damage it has done to the fruit industry of the United States. Judging by its history in New Zealand it is not likely to become here the dangerous menace to fruit-growing that it has been in other countries; and there is little doubt that winter spraying with lime and sulphur and summer applications of whale-oil soap will easily hold this destructive pest in complete subjection. The spraying will, of course, have to be thorough, and great care should be exercised in avoiding the distribution of infected plants and trees, and thus lessening the danger of its spreading to districts that are at present free from the pest.

This scale insect is so minute that it usually escapes observation until it has become quite abundant in the trees. Trees which have been badly affected for some time have a rough bark covered with dark-grey scurfy patches. If such bark is cut with a knife a reddish discoloration will be seen; this is very characteristic of the San Jose scale, and when it appears on the fruit red-colored blotches are nearly always formed. The adult scales are about $\frac{1}{8}$ in. in diameter, greyish in colour, with a central black nipple surrounded by one or two fairly well-defined yellowish rings. The smaller scales are

quite black, with a central nipple, and the rings more or less indistinguishable in colour from the rest of the scale. The larger scales are about the size of a pin's head, while the smaller ones are mere black dots.

The winter is passed by this insect in a partly grown semi-dormant condition. In the early spring the scales become full grown and give birth to living young. These young insects rapidly attain maturity, and in about thirty-five days begin in their turn to produce young. This breeding continues throughout the summer, and does not cease till the late autumn. As each female is capable of producing something like four hundred young, the rapidity with which a tree may become covered with scales is easily imagined.

The San Jose scale is liable to attack nearly all cultivated trees, and has been noticed in New Zealand on the following: Apples, pears, plums, peaches, nectarines, currants gooseberries, and apricots.

How this pest originally came to New Zealand is not positively known, but it is almost certain that it has been present in certain parts for several years. Thus its spread here has not been anything like so rapid as in other countries, for it was not till April, 1908, that any serious damage was noted. Since that time, especially in the Nelson District, a strenuous effort to hold it in check has been made, both with winter and with summer spraying, and the results so far have been most encouraging. There seems little doubt that in New Zealand, as in Australia, it is by no means so formidable a foe to the fruit-grower as the oyster-shell scale. Of course if neglected it is likely to cause great damage but in those archards where systematic spraying for scale insects is carried out it will never be a pest of much moment.

The Frimley canning factory, New Zealand, shelled in one day recently with its machinery six tons of peas, which were all canned and put through the various process and made ready for the market. At present 50 pickers are employed, and this number is expected shortly to be doubled.



W. GILL,]

View near Saw Mill, Wirrabarra.

[PHOTO

Local vignerons report a better grape crop than last year: It is considered that a three-million gallon vintage may yet be obtained.

The harlequin bug has made its appearance in fruit and vegetable gardens at Maryborough, Victoria. It is a red and black insect, which attacks apples, plums, pears and tomatoes. The district orchard inspector (Mr. W. P. Chalmers) recommends the spraying of lysol—a tablespoonful to every gallon of water—on the affected trees and plants. It is necessary to clear away rubbish, as the bug

finds shelter under debris.

The absence of the fruit fly pest from New South Wales orchards (writes the Sydney Mail) has made the life of the fruitgrower much easier. The fly has practically disappeared. In order however, to prevent its appearance, growers must continue the work of picking up and destroying (by boiling or burning) of all fallen or infested fruit. If this precaution is strictly carried out, Mr. W. J. Allen, the fruit expert, does not anticipate much trouble.

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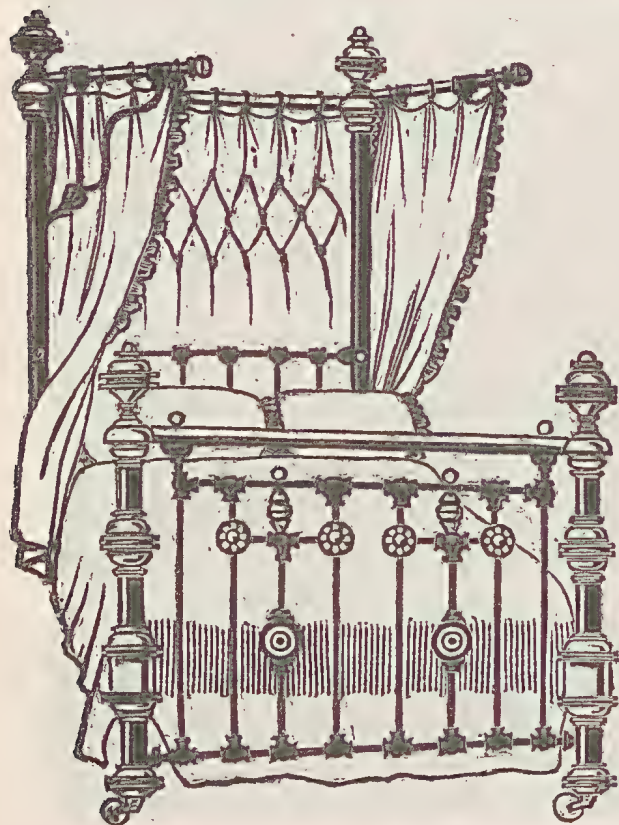
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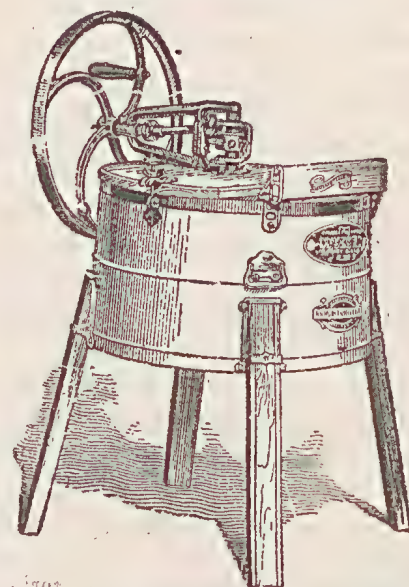


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THE FARM.

Farming in England.

At a recent meeting of the Minlaton branch of the Agricultural Bureau an interesting paper was contributed by Mr. Page on the above subject. The writer stated that the lot of the English farmers, compared with those of Australia is not a happy one. Rents are very high, ranging from £2 to £8 per acre for agricultural land, and the tenure is very insecure; the land in almost every case being held on a term of one year only. There are practically no Crown lands in England, as we understand the whole of the farming lands being held by rich private owners, and being let to the tenant farmers at a yearly rental. He did not meet one farmer who owned the farm which he occupied. The English farmers are very reserved and conservative as a class, and are unwilling to discuss agricultural matters with farmers from other parts of the world. They seemed to him to look on them as their natural enemies and to think that but for the other producers of the world competing against them in the production of wheat and other grain they would realise a much better price for their products. Nevertheless the Englishman has the better of the Australian in wheat, as he can obtain from 1s to 1s and 6d per bushel above the price realised in this country. Another advantage which the English farmer has is that labor is cheap; but the cost of production in other ways must more than counterbalance the cheapness of labor. Where the Australian farmer would do with one or two men, the English farmer would employ four or

five. Agricultural methods appear to be much more advanced and scientific in Australia than in England, and the same might be said of labor-saving machinery. The multi-furrow plough and the large six or ten horse teams are unknown in England, in fact, where more than two horses are used they always have an extra driver. He saw a small seed drill being worked by three men and one boy, and three horses—one man driving two horses attached to the pole of the drill, a boy leading one horse in front, and two men walking behind the drill. He also saw the same way of working a twine binder—two horses being driven by a man, and one horse in the lead being led by a boy with one man on the seat of the machine. The English farmer does not sow a crop for hay, but cuts what is called meadow grass and clover. It is left on the ground for days, or even a week, after it is cut; then it is raked up into rows and tossed about until dry; it is then carted into the stack. In some places instead of carting the hay with wagons or drays, they have a long rake, or scraper, 15 ft. or 20 ft. long, with a horse attached to each end. With this the hay is dragged up to the stack. It is then thrown on to a spiked elevator and elevated to the top of the stack, where it is taken and stacked by men with their hands—not with pitch forks. The wheat crops in the parts visited looked no heavier than the best in this district. I was told, however, that they should yield from 30 to 50 bushels per acre. The oat crops were very heavy, and should yield anything from 50 bushels upwards. The barley crops I saw were very moderate, and not nearly so heavy as the best in this district. The fact that all grain crops in England are bound and threshed with a header, or threshing machine, and that consequently little or no loss of grain occurs during harvest operations, would no doubt improve the yield per acre. Stock of all kinds, including poultry, are very much dearer than in Australia. Dressed fowls are worth from 3s 6d to 6s 6d, and turkeys anything up to 33s. Fat sheep realise from £2 to £3 in the market, and fat bullocks up to £20, while draught horses are worth anything up to £70 or £80.

The farm stock, however, is much superior to ours, particularly horses. He was very much surprised, both in England and Island, to see the splendid class of horses working in the towns and on the farms. Whether hackney, carriage horse, or ponies, they were all in good condition good movers with plenty of style, and in most cases perfectly sound, while the farm horses and those working in drays or wagons about the town are as good or, better than the stallions travelling for hire in this district.

—'K. & W. Times.'

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- It makes a prosperous country.
- It causes the desert to blossom.
- It insures full crops each season.
- It makes poultry raising inexpensive and particularly profitable.
- It multiplies the productive capacity of the soil.
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- It gives arid lands great advantage over rainfall areas.
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Cultivation of the Potato

By the Editor of the 'Queensland Agricultural Journal.'

(Continued from last Issue.)

— Judging Potatoes at Shows. —

Because a potato has a high-sounding name, and because it is a new variety judges are satisfied to examine the interior and exterior of the raw potato and award it a prize or disqualify it according as its symmetry and healthy appearance appeal to their judgement. But does this examination satisfy the public? What the farmer wants to know is, its cropping power and its powers of resisting disease, and its early or late appearance on the market. What the housewife wants to know is, what are its cooking properties. It is of little importance that a certain potato exhibit has obtained first prize, for a crop must be a very poor one if out of 5, 10, or 20 acres a bag or two of tubers cannot be obtained which will not satisfy a judge in all that concerns the eye. But there are splendid-looking potatoes which will not stand the cooking test. Some, when cooked, smell of the earth; others show none of that beautiful mealy appearance which is the characteristic of a good cooking potato. One that bursts its jacket when properly cooked, and shows a beautiful dry mealy education is surely preferable to one that is soapy or waxy. The market price of potatoes depends largely on the quality of the cooked tuber. At some shows the judges are supplied with a plate of hot cooked potatoes of each variety exhibited, and thus are able to determine what, after all, is the only true test of the value of a potato—its cooking qualities. Size is certainly not everything. It would be a move in the right direction if all potato exhibits at shows were accompanied on judging day by a dish of each variety cooked by an artist—for to cook a potato properly is a work of the culinary art not understood by all cooks.

— Quantity of Seed Potatoes Required to Plant an Acre of Land. —

Those farmers who have been planting potatoes year after year do not require to be told how many hundredweights or tons they require to plant a given area, but there are many t king up farming nowadays for the first time, and not being brought up to the business, have very little, if any idea of the quantities of any kind of seed required per acre for field crops. To such amateur farmers the following advice will be acceptable:—

The quantity required to plant an acre of land with potatoes is, of course, regulated by the size of sets and the distance apart they are planted. There is a great difference of opinion as to the size of sets to use. Generally, when potato-growers are discussing the size of sets to use, if they are asked what weight the sets should be they don't seem to know what is meant. One man says he prefers a big set, another man prefers a small set—neither man seems to know the weight of the sets he is advocating. It will perhaps be a guide to some growers to know that a potato is as large as an egg weighs as much as the egg, and an ordinary hen egg weighs 2 ozs. Some growers consider a potato as large as hens eggs will make two sets—this would be 1 oz. for each set. With potatoes planted 2 ft. from row to row and 1 ft. apart in the rows, it would take 21,780 sets, and the sets weighing 1 oz. each it would take 12 cwt. 0 qr 17 lb. 4 ozs. of seed to plant an acre; this is about the distance apart generally adopted in small gardens. On the farm potatoes would require to be planted 2 ft. 6 in. by one 1 ft.—this would take 6 cwt. 2 qrs. 25 lbs. of seed, with one oz. sets at 2 ft. 6 in. by 1 ft. 3 in. it takes nearly 8 cwt. of seed. The size of sets is one of the most important things the farmer that has to buy his seed has to consider. Seed potatoes the size of hen eggs are the most economical to buy, each potato will make two sets, and each set will grow as good a plant as a whole potato the size of an egg.

(To be Continued.)

Miscellaneous Items.

The training of the colt cannot begin too early.

Fattening foods are misplaced when fed to growing colts.

In a horse a poor appetite is usually a sign of some weakness.

The real test of value in a horse is strength, lively action, and endurance.

Good horses deserve good harness, and their appearance is materially improved by it.

Education adds to a horse's worth, provided the education is along the right lines

A little care in watering or feeding while the horses are warm may avoid a serious loss now.

The day is at hand when a farmer will be ashamed to say that his land is poor, for it will at once be known that he is a poor farmer.

It never pays to overstock a pasture. It is not possible to get maximum results where there is not sufficient feed during the whole season.

The experience of hundreds of breeders of pure bred flocks demonstrates that best results are secured from the mating of matured animals

There is probably nothing better for starting lucerne than wood ashes. Ashes contain both lime and potash, with more or less phosphorous. All these the soil needs.

In making a silo, of whatever material (and a silo may be made of almost anything), care must be taken to have the insides smooth to ensure the close packing of the greenstuff.

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EAST ADELAIDE, Villa, 9 rooms, every convenience, large block.

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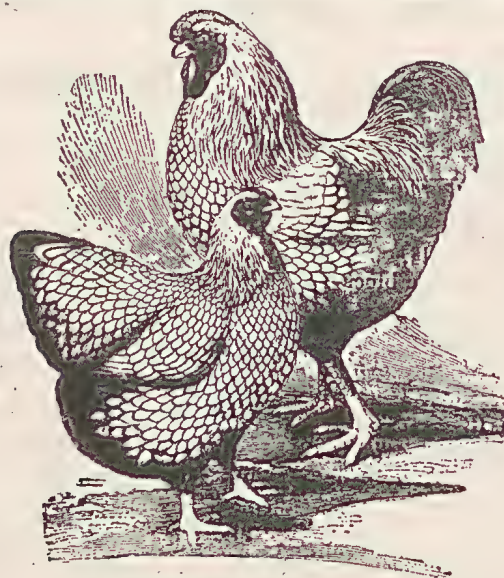
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The Orpington in America.

The progress of the Orpington in America is seen in some statistics published in the 'Reliable Poultry Journal.' In 1901, it is stated, there were 37 Orpingtons exhibited at Maddison Square Garden Show, while last year there were 496, made up of 223 Buffs, 144 Blacks and 70 Whites, the remainder being other varieties. The same paper points out that even the old school market men are beginning to tell us that 'one of the prettiest carcasses that goes on the table is that of this new English breed, the Orpington.' The American public is coming to realise that a white skin may cover meat that is just as tender, just as juicy, and just as fine in flavour as that covered by a yellow skin. When we come to the real test of general popularity, every breed or variety must stand or fall upon its valuation as a market or table fowl. Once a breed or variety wins public favor as commercial fowl, it will soon come to the front as an exhibition fowl. Its popularity will cause more breeders to make it up, and then competition will become stronger, which leads to the show-room, and results in larger and still larger exhibitions.

A Useful Recipe.

Tincture of iodine is very beneficial if painted on the inflamed or swollen joints of limbs of fowls. It is quite harmless, and should be applied daily, by means of a camel hair brush. It is also useful in sluggish wounds or ringworms. For internal purposes, the soluble salt of iodine-potassium iodide is generally used. It may be given in the drinking water in the proportion of one grain to the ounce of water. Glycerine of iodide is made by using one part of iodine to fifty parts of glycerine. The advantage that this has over the tincture is that it does not harden the skin. It may be used for similar purposes to that mentioned for the ordinary iodine.

Indian Runner Ducks.

Breeders of Indian Runner ducks will be interested in the following criticism of the classes at the International show (London) in the 'Feathered World';—'Many of the birds are still a good way from the standard, and there is room for a good deal of improvement in form and carriage. The position of the legs requires

attention; in very few specimens are they far enough back, and consequently the birds do not assume the characteristic erect attitude which is desired unless they are startled or touched up. Most of the birds are more or less defective about the neck and shoulders. There is too much angle at the junction of the neck and body causing a hollowness behind the neck and also throwing the wings out of place. Until this defect is remedied, and both the body and neck carried more in a line, the standard type cannot be attained. The heads and bills are quite long enough, and the aim should be to improve the shape and formation, and at the same time get a deep olive-green color, especially in adult ducks. Both sexes young and old, are getting too yellow in bills. The drakes are fairly good in color right through, and the two first prize ducks stood out well ahead for color, and were warm, sunny fawns, quite clear of the dark dusky shade often seen. There were very few birds seriously defective in markings.

Poultry Brevities.

Show!

Visit the shows.

Watch for red mites.

Green feed is salvation.

Strive for autumn eggs.

Push the pullets forward,

Work is better than worry.

Cull heavily, but carefully.

Treat your fowls as friends.

Lousy hens will not thrive.

Success is not for the fickle.

Keep the youngsters growing.

Have you tried the dry mash.

Don't let rats eat your profits.

Aim for stayers—not sprinters.

Introduce first blood this season.

Burn all carcasses of diseased birds.

To err is human—to criticize more so.
Time to get ready for hatching table stock.

Why not make a start with purebreds right now?

Shortness of the leg may mean vigor and staying power, or it may be simply under-size, and lack of development.

Poultry Farming on Small Holdings.

[By H. V. Hawkins, Poultry Expert, in
'Victorian Journal of Agriculture.'

(Continued from last Issue.)

— Preserving Eggs. —

The method of preserving eggs by means of waterglass is the most satisfactory process of keeping them for a few months. Waterglass is a cheap product that may be secured from any chemist or store-keeper. It is used in the proportion of one part of waterglass to ten parts of water. The water should be well boiled and afterwards cooled prior to mixing. One gallon of waterglass will be sufficient to pack 50 dozen eggs. Large tin cans, or small barrels may be used to advantage in packing the eggs. Eggs should, on no account, be stale; the fresher they are, the longer they will keep. Care should be taken to keep the eggs so preserved in a cool cellar or shed with an even temperature.

When using preserved eggs for culinary purposes it is the best to puncture the shells on the broad end, to remove the accumulated gas. If this is not done, the egg is almost sure to crack when boiled.

— Agricultural Value of Poultry Manure. —

I have often wondered, when reading the results of egg-laying competitions, and balance-sheets furnished by agricultural students, why no mention was made of fowl manure. One is led to the conclusion that most poultry breeders either neglect gathering the manure daily, or else throw it into the rubbish heap. When it is remembered that each bird of 8 to 9 lbs. live weight drops nearly 52 lbs. of manure each year at night-time alone, and basing the average daily droppings at nearly one 100 lbs. per bird per year, what must the value of this manure, wasted or trodden in yearly, amount to?

To get a fairly accurate idea of its value,

I have had gathered daily the droppings from four pens, the size of each pen being 75 feet x 25 feet. In two of the pens there were eight birds, and in the other two seven, short grass being in each pen. The result was as follows:—From the pens of eight birds, weighing 8 lbs. each, the manure was gathered and partially dried (seven days), the weight from each bird averaging (during day-time), 1½ oz., and on dropping-board under perch (night time), 2 ozs., or 46 lbs. per annum. It will thus be seen that the night manure from large birds is worth at least 1 s. per annum. This conclusively demonstrates that thousands of tons of fowl manure, representing thousands of pounds sterling, are lost yearly in this State alone.

Roughly speaking, the fresh manure is worth £2 per ton, and, when dry and properly stored in casks, £4 per ton. It will thus be seen that little, if any, manure from live stock is so rich in fertilizers as the fowl manure.

According to an eminent authority, its true market value is as follows:—

	Fresh Manure.	Partially-dried Manure
Moisture ...	61.63	41.06
*Organic matter and ammonia salts...	20.19	38.19
Tribasic phosphate of lime ...	2.97	5.13
Magnesia, alkaline salts, &c. ...	2.63	3.13
Insoluble salicious matter (sand) ...	12.58	12.49
	100.00	100.00
*Containing nitrogen	1.71	3.78
Equal to ammonia ...	2.09	4.59

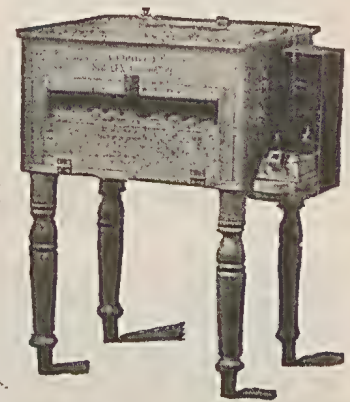
One thing should be born in mind, i.e., that lime must on no account be used in the runs, or houses, as lime liberates the ammonia, and when such is the case, its value as a manure is practically gone.

The collected manure should be stored in an old barrel, where it must be kept dry, and mixed with a little sand, gypsum, or wood ashes, also a little soot. This tends to prevent the loss of ammonia. The manure may also be placed in a tub of water, and allowed to stand over-night; then stir and use the liquid for watering. Vegetables of all kinds, also flowers and plants, especially pelargoniums, roses, lemons, &c., do well with it.

The growth of the onion and tomato, &c., is largely increased by the use of this manure, and to the nurserymen it is of the greatest value. The vegetable acids are as important as protein to growing

chicks, both being an absolute necessity. It is therefore an easy matter where land is available, for every farmer of poultry to utilize to its fullest extent the valuable manure referred to in growing vegetables.

(To be Continued.)



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'Australian Gardener' P. & P. Co.

About Pigeons.

PIGEON HOMING.

Notes For Novices.

The King is dead ; Long live the King ! The racing season is past, possibly with many disappointments, possibly a triumph also when a beginner saw his clock in front of many of the old hands at the game.

Possibly, too, our beginner has wondered why, race after race, these old hands, the same old names, go up to collect the golden sovereigns, with seldom a break.

Position has something to do with it, yet his position is as good as theirs, luck counts also, but not to such a great extent. Possibly our beginner has the best racing blood in the state.

Why is it he is so often at the bottom of the list and other fanciers, with inferior pigeons may be, at the top ?

The answer is not far away:—'To make good bread, one must not only have good dough, but know how to bake it.'

The first step on the road to success is to recognise that in pigeon racing there is no 'off' season.

No races are now being flown, yet the attention our pigeons need now is greater

than they receive when racing it in full swing, for December, January and February are the months in which our birds moult.

The moult is not a disease. It is Nature's method of providing a new suit of clothes (or rather feathers) for the bird. Those same feathers will be needed to carry our pigeons to victory in the races next season, so it is, 'up to' our novice to see they are the best that can be got and not poor spindly, shrunken things.

Bear in mind also that these feathers are supplied from the body of the bird, and therefore, the moult is somewhat of a drain on the pigeon's strength.

For a start, the sexes should have been separated by December 1st, all exercise diminished and the rations increased slightly, and the bath used freely in warm weather.

This treatment 'unwinds' the birds and tends to loosen the feathers, thereby helping on the moult.

The middle feather of the wing is the first to drop and be renewed.

This falls generally in October and is followed three weeks later by the adjoining flight feather, and so on at shorter intervals until the out side flight feather (at end of wing) is reached, by which time the tail also should be in moult and finally the small features of the body and head are renewed.

At present, if on extending the wing there are less than four new feathers in the middle, that pigeon is in trouble,

The majority will now have seven new,

and three old frayed harsh dry feathers on the wing.

Feed should be peas and wheat, with occasionally linseed, and a lettuce now and then on a fine day. Hemp and canary seed may be added as the two exterior wing feathers are being renewed, but avoid excess.

Give backward birds as much Epsom Salts down their throats as can be pinched up between finger and thumb and repeat dose two days afterwards, taking care they have had no breakfast, and choosing fine weather.

Thoroughly cleanse all water vessels, adding a very little Condyl's Fluid (not the crystals) to the water now and then, see that the grit is clean and not musty do not economise in the direction of food, but get the best peas, &c., available, do not force exercise upon the birds, and avoid handling them, keep lofts clean and well aired but not draughty, and in a month or two the pigeons will be a delight to the eyes with plumage as clean and tight and bright as a fresh coat of paint.

It may be, a good racer, tried and trusty, has not moulted all his wing feathers when nearly all his loft-mates have finished.

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Agricultural College, Roseworthy.

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Table Birds—Eggs from various crosses, 3s., when available.

Settings will be 15 eggs and no replacements.

Chickens at a month old.

he stock is of first-class quality and vigorous

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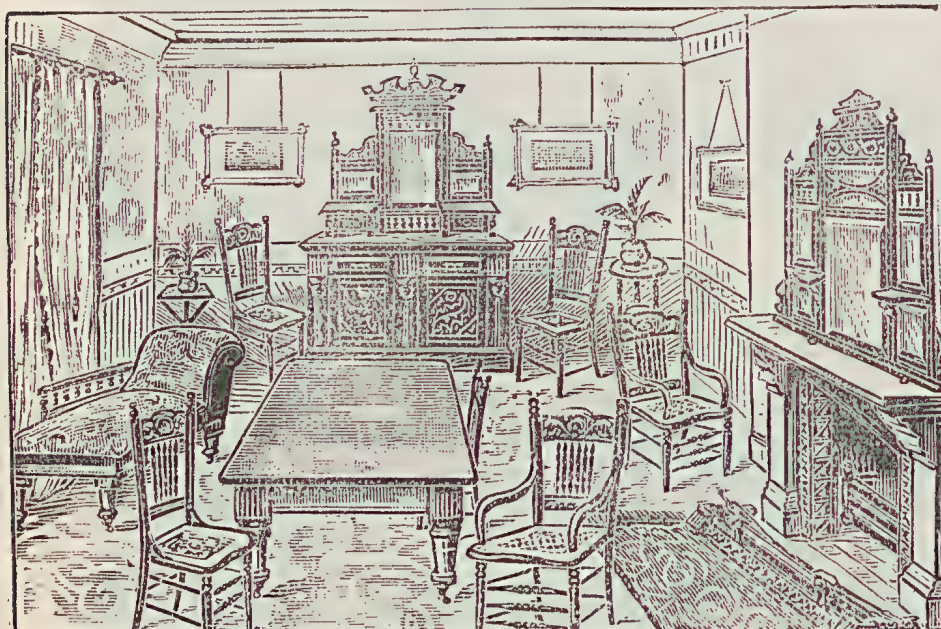
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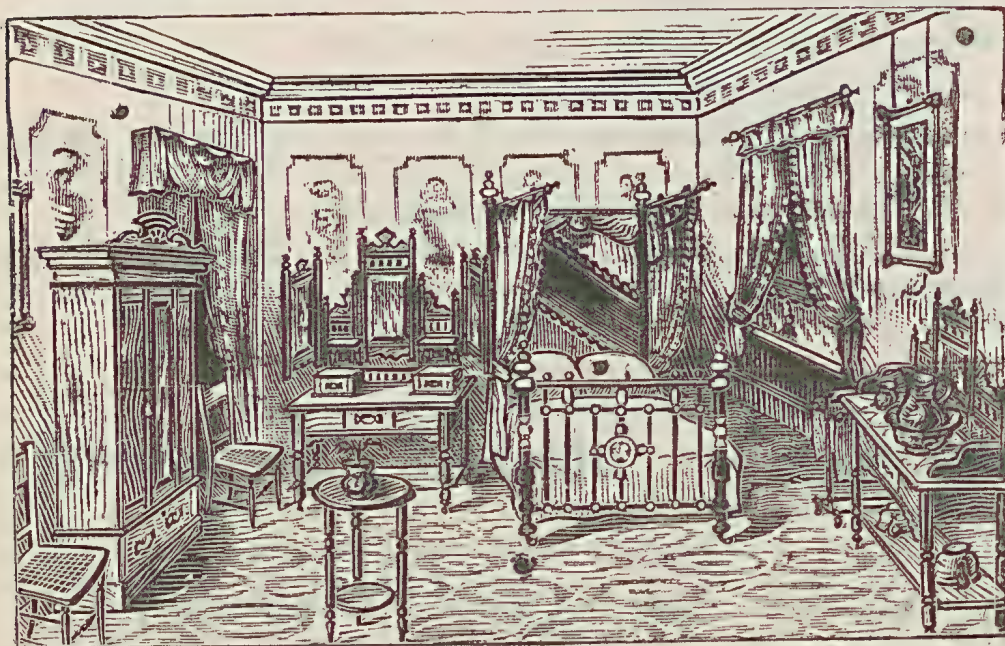
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- 1 Curtain Pole
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- 1 Picture
- 1 Curtain Pole
- 1 Pair Curtains
- 1 Towell Horse
- 2 Chairs
- 1 Occasional Table
- 16 square yards Floorcloth



We Furnish you a BEDROOM as shown for £19 14s 6d.

For the Ladies.

Just Tell Them So.

There's much to do the whole day through
And little use complaining,
For the darkest night will change to light,
And the blackest cloud quit raining,
If worth you find in weak mankind,
'Twill do all good to know,
That someone thought they nobly wrought
And frankly told them so.

Enough will remain of bitter pain,
With all the aid you lend,
Some will be sad, and others glad,
On down to journey's end.
As in the throng you pass along,
With rapid strides or slow,
If virtue you see in band or free,
Just stow and tell them so.

There are many cares in home affairs,
That wear the brain and heart,
And many a way, 'most every day,
In which to bear a part.
If you love your wife as you do your life,
It will keep your heart aglow,
And make her feel your love is real,
To often tell her so.

If on the road you see a load,
Some pilgrim downward pressing,
A willing hand to help him stand,
Will bring you back a blessing.
So in the fight 'twixt wrong and right,
That's waging here below,
Should praise be said, don't wait till dead,
Before you tell them so.

Silver and Semi-Precious Stones.

The passion just now is for all manner of antique looking brooches, pendants, ear-rings, buckles, and girdles.

Silver, despised a few years ago, now oxidised and curiously wrought, is more prized than the gold chased to distraction. A gew-gaw even of base metal, showing fine workmanship and set with some precious stones, is more beloved by your dainty and fastidious dame, than a conventional gold or silver ornament set with rubies or diamonds of twice its value.

Notions for enamels have been culled

from the sarcophagi of Egyptian princess and priestesses. Museums, and the tombs of ancient kings have been ransacked for wonderful and rare designs.

So we have medallions of heavy Muscovite pattern, gemmed silver embroidery, beaten silver set with moonstones, garnets embedded in blackened metal, and pieces of rough opal and turquoise matrix stung and worn au naturel. Jewels that Solomon in all his glory may have worn, or the Queen of Sheeba borne upon her dusky shoulders, are reposing in the windows of our gold and silversmiths.

As the brooch will be the cachet of the gown, and in many cases its only ornament, women had better search out and confer betimes with their jewellers concerning winter decoration.

Using the Toothbrush.

So many parents are careless regarding their children's teeth, especially the milk teeth; but the better these first teeth are cared for the more even and sound will the second ones come in.

Teach the boys and girls the importance of brushing them after every meal and just before bedtime.

If they are to be neglected at all, do not let it be at night, for the tongue keeps them half clean during the day; but at night the mouth is in repose, and any particles of the food that are not removed, unite with the stagnant saliva and form an acid that eats away the enamel.

The correct way to clean the teeth, says a prominent dentist, is to brush downward upon the upper teeth, and upward upon the lower teeth; brush the inside and the crown just as carefully as you do the outside, and use a good powder once a day.

Watch for the first permanent molars that come behind the milk teeth; they are sometimes mistaken for the first teeth and allowed to decay. Watch, too, when the new ones are coming in to have them regular and even, for bad teeth are a great disfigurement.

Madame Melba's hint to would-be singers is that sixteen is the age at which to commence practice. No one should begin earlier.

Cleaning White Gloves and Shoes.

The keeping of gloves and shoes white is one of the problems of this summer.

The woman who wears lily white, dreads 'the snows of yesterday' effect. She knows that white is comely only in its spotlessness, and that an exquisitely laundered frock will not compensate for dingy gloves and shoes.

White silk and lisle thread gloves can be prevented from yellowing by washing them in lukewarm, not boiling, water, and by rubbing them with a lather of soap, rinsing in cold water with a drop of blue in it, and quick drying.

A little Scrubb's ammonia or borax in the water, occasionally is beneficial, but used too often, either has a yellowing effect.

Very attentive treatment has to be meted out to canvas shoes if they are to retain their freshness. They should be brushed with an old clothes brush after they have been worn, and re-whitened with blanco. The clay is made into a thick paste by the addition of a little water. The shoes having been thickly coated with it, turn a light grey color, but put out in the sun to dry, soon assume a perfect paper whiteness.

Everybody knows how to clean kid gloves with benzine, but washing leather gloves are often spoilt by careless treatment.

It is best to use very hot water to wash them in. A teaspoonful of olive oil and some Castile soap should be added to it, and all whisked into a stiff foam. Into this the gloves must be dropped, and allowed to remain for a few minutes. The soiled spots should be rubbed with a piece of old flannel. The gloves then rinsed in fresh water, and the moisture squeezed out of them. Leather gloves should never be wrung.

The cleaning of white kid or suede shoes is a more complex matter. Benzine is the simplest purifier. It may be used as it is for cleaning gloves, care being taken not to work it near an open fire or uncovered light. A reliable cream should be used to produce the finishing gloss or polish.

HOUSEHOLD HINTS

— Green Apple Chutney. —

Six lbs. apples, 2 lbs. onions, 2 lbs. brown sugar, 1 oz. garlic, 1 oz. cloves, 1 teaspoonful white pepper, 1 teaspoonful each of cayenne, whole allspice, mace, whole ginger, cinnamon, 1 handful salt. Cover all with vinegar and boil four hours. Put all the spices in a thin bag.

† † †

— Tomato Pickle. —

Slice 6 lbs. green tomatoes and 4 lbs. onions; put some salt on each layer, and let them stand over night, then drain off. Take 2 quarts of vinegar 1 lb. treacle, $\frac{1}{2}$ lb. of mustard, 2 tablespoonfuls of cloves, the same quantity of whole pepper, and whole spice in a muslin bag. Boil all together for a minute, then add the tomatoes and onions; boil for 10 minutes. Make jars or bottles airtight.

† † †

— Tomato Sauce. —

Twenty lbs. tomatoes, boil soft and

strain through a sieve then boil for one hour; next add $\frac{3}{4}$ lb. salt $1\frac{1}{2}$ lbs. sugar, 1 oz. cloves, 2 ozs. allspice, 1 oz. black pepper, $\frac{1}{4}$ oz. cayenne, 2 ozs. garlic. Garlic must be picked, bruised, and put in bag; all the spices to be ground and put in another bag. Boil 2 hours.

† † †

— Potato Patties. —

Press hot, well seasoned, mashed potatoes into a shallow pan about an inch thick; cool and with cooky-cutter cut out in rounds and scoop out much of the inside; put a little butter on each, and brown in the oven while you cream any bits of cold meat or salmon; draw the pan to the edge of the oven, and put in the mixture, being careful to have it very thick, and with a cake-turner lift out each one on a platter.

† † †

— Salad Dressing. —

One egg, 2 teaspoonfuls sugar, 1 small teaspoonful dry mustard, $1\frac{1}{2}$ tablespoonfuls vinegar, 1 desertspoonful butter, pinch of salt, $\frac{1}{2}$ cup of cream (if you have it), $\frac{1}{2}$ cup milk with or $\frac{3}{4}$ cup without,

cream. Hard boil the egg, separate the hard-boiled yolk from the white and add it to the other dry ingredients; add the melted butter, then the vinegar, mixing all till very smooth. Then add the milk, drop by drop; this is to prevent the dressing curdling, and is the secret of the salad dressing. Finally the cream for very swell salad dressing.

† † †

— Ginger Nuts. —

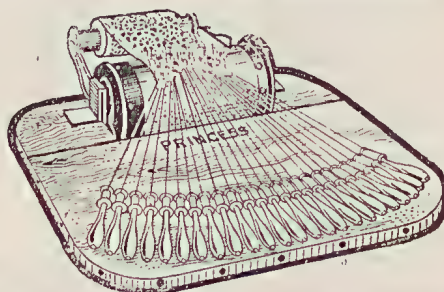
Threequarters of a lb of flour, $\frac{1}{2}$ lb. butter, 4 ozs. soft black sugar, $\frac{1}{2}$ oz. ground ginger, 1 saltspoon carbonate of soda, 1 small egg, and sufficient treacle to make into a nice workable dough. Beat butter and sugar to a cream, add egg and mix into flour; lastly add treacle (but be careful not to add this too plentifully.)

† † †

— Neapolitan Fritters. —

Cut some light bread or French rolls into $\frac{1}{4}$ inch thick slices, then with a cutter into rounds. Heat 3 ozs. or butter, and fry the bread. Arrange the fritters in a circle on a dish. In a small saucepan put a glass of wine and a cupful of jam, and when it boils pour it over the fritters, sprinkle with some desiccated cocoanut, and serve very hot.

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The Young Folks.

The Friend of Man : Some uses of the Dog.

(Continued from last issue.)

IV.—Dogs and Carts.

The dogs in some countries are made to work like horses. Not only do the Eskimos make teams of dogs draw their sledges, but in many European cities dogs may be seen harnessed to little carts loaded with various wares, which they draw from place to place as they follow their masters, who are usually hawkers, on their daily rounds.

In England is seen nothing of this sort now, but if we were to look through the pages of the illustrated magazines which were printed sixty or seventy years ago, we could find many pictures of dogs drawing carts along the streets of our English towns. These carts were similar to those which are now used for horses, with the exception that they were smaller. They had sometimes two wheels and sometimes four. The dogs were usually harnessed between shafts, though sometimes they were fastened like coach-horses on each side of a pole. They were also occasionally fastened to the axle of hand-carts, so that while their masters pulled at the shafts, the dogs helped them by pulling at the axle as they walked between the wheels.

I once had a chat with a man who had possessed a dog-cart many years ago. He was an umbrella-mender, who went from house to house in the country, seeking umbrellas to repair. His small flat cart was drawn from town to town by a pair of stag-hounds, and at every town he chose to stay he left his cart in an inn while he made his tour on foot to the scattered farmhouses in the surrounding district. His dogs could travel at the rate of ten miles an hour, and draw the cart, its load, and the umbrella-mender himself as driver. The dogs were specially trained for this work, and they were no use for sport.

Cripples frequently made use of dogs and dog-carts, which they used as horses and carriages to take them from place to place. A cripple at East Grinstead drove

a four-wheeled cart and a team of bull-dogs, and would frequently race with the stage-coach. Seven miles an hour was the usual speed of his team, but occasionally it was increased to ten.

Various breeds of dogs were used for drawing these carts or carriages. Fox-hounds and mastiffs were used, and no doubt there were other kinds, especially for the slow, heavy work of drawing greengrocers' carts, milk carts, tinkers' carts, and similar vehicles. The poor dogs were often over-worked, under fed, and cruelly ill-treated. The public were at last moved to sympathy by the stories of the cruelties which were practised upon them, and the use of dogs for drawing carts was brought to an end by two Acts of Parliament. The first one was passed in 1839, and put a stop to the use of these working dogs in London, and the second one, passed in 1854, extended the prohibition to all parts of the United Kingdom.

For over fifty years, then, no dogs have been employed in drawing carts in England. It is possible to discover when dogs were first used for this purpose? I am afraid that it is not. I have seen a copy of an old Greek painting which shows a little boy driving a carriage drawn by two dogs, and both boy and dogs seem to be enjoying the sport very much. This perhaps is fun rather than earnest. We have evidence that true dog carts were used in England nearly six hundred years ago. A picture of that period shows us a two-wheeled cart, drawn by three dogs, one in the shafts and the other two in the traces. A man blowing his horn sits in the cart.

In the last three or four hundred years we may find many references to working dogs and dog-carts. Macaulay, the historian, says that two hundred and fifty years ago the streets of Bristol were so narrow and so undermined by cellars, that goods were carried from place to place almost entirely on small trucks drawn by dogs. Dog-carts were probably not so common as this in London at that time, because a distinguished Englishman, John Evelyn, who saw dogs drawing carts in Antwerp and Brussels speaks of them with some surprise, as though it were rather a novel sight. They must have been very numerous, however, in the metropolis and throughout the country just before they were prohibited by the Acts of Parliament.

—W. A. Atkinson, in 'The Prize.'

Why a Collie Dog is so Called.

The word is of Scottish origination being derived from the Gaelic 'cu,' signifying dog, and 'luth' (the 'th' silent) meaning active or enduring power. The word therefore is simply indicative of a smart, strong dog, with great staying power; but in course of time the type got fixed. Burns spelled the word 'collie,' Ferguson 'colley,' and Ramsey 'coly.'

What the word 'News' Comes From.

The author of a 'History of Origins'—issued anonymously in 1824—gives this quaint explanation: 'As news implies the intelligence received from all parts of the world, the very word itself points out its meaning—even N. the north, E. the east, W. the west, and S. the south.' 'This expressive word,' adds the same author, 'also recommends the practice of the following virtues: Nobleness in our thoughts, Equity in our dealings, Wisdom in our counsels, and Sobriety in our enjoyments.' There is something of the fanciful about at least the latter part of this.

Conundrums.

Why is the figure 9 like a peacock?
Because without a tail it is nothing.

.....

Why were Bulwer Lytton and Dickens the most industrious of novelists?

Because Lytton wrote 'Night and Morning,' and Dicken's wrote 'All the Year Round.'

M. L. Tomlinson,

(LATE J. G. ORAM),

Manufacturing Jeweller,
Watchmaker,
Diamond Setter & Engraver.

Repairs to Watches, Clocks, and Jewellery of every description accurately, artistically and promptly executed at moderate prices.

27 Grenfell St., Adelaide

WIT AND HUMOR.

Little girls believe in the man in the moon; big girls in the man in the honey-moon.

— Why, Oh, Why —

'Mamma, why should landladies object to children.'

Mother—'I'm sure I don't know, but go and see what baby is crying about, and tell Johnny to stop throwing things at people in the street, and make George and Kate stop fighting, and tell Dick if he doesn't stop blowing that tin trumpet I'll take it away from him.'

— Just a Little Bill. —

David Slopway—'I shall bring you back these dark trousers to be reseat Mr. Snip. You know I sit good a good deal.'

Mr. Snip (tailor)—'All right and if you'll bring the bill I sent you six months ago I will be glad to reseat that also. You know I've stood a good deal.'

— Not to be Outdone. —

Railway Guard—'You had better not smoke sir.'

Passenger—'That's what my friends say.'

Guard—'But you must not smoke sir.'

Passenger—'That's what my doctor tells me.'

Guard (indignantly)—'But you shan't smoke sir.'

Passenger—'Ah! that's what my wife ays.'

An Old Fowl. —

Pedantic Old Gentleman—'I believe it is improper to speak disrespectfully of one's elders?'

Restaurant Waiter—'So I've heard, sir.'

Pedantic Old Gentleman—'Then I will be silent concerning this fowl you have just brought me.'

— Lead Not Pushed. —

Gaggs—'Winday says he pushes a pencil for a living, but I think that is a foolish think for him to do.'

Bagg—'Why?'

Gaggs—'Because a pencil should be lead.'

— Pure Mathematics. —

Kit: George, which is the greater number, two elevens or two tens?'

George: 'Two elevens, of course.'

Kit: 'Why?'

George: 'Two elevens are twenty-two, silly.'

Kit: 'Well, two tens are twenty, too.'

— A Happy Thought. —

Customer—'I wish I had as good a head as you have, I have tried everything to remedy my baldness, but with no good results.'

Watchmaker—'Have you ever tried rubbing your head with steel?'

Customer — 'Certainly not. That's ridiculous.'

Watchmaker—'Why ridiculous? Isn't it a fact that steel makes the hair spring?'

— A Query. —

Alfred—'Why is Mr. Rockefeller's money tainted in two ways, Albert?'

Albert—'Is it tainted?'

Alfred—'Why certainly.'

Albert—'Well, I give it up. How is it tainted in two ways?'

Alfred—'Because, Albert, 'taint' yours, and 'taint' mine.'

— The Source. —

An Irish recruit in one of His Majesty's riding schools had the misfortune to part company with his horse.

According to custom, the sergeant rode up to him and demanded:

'Did you receive any orders to dismount?'

'I did, sorr.'

'Where from?'

'From hindquarters, yer honor,' said Paddy with a grin.

— His Little Mistake. —

They stood beneath the stars, silent as the heart-beats of the night, looking into the diamond-studded shirt-front of the sky.

'Is that Mars?' he whispered, as he slipped his arm round her taper waist, and gazed upon a glittering orb in the distant blue.

'No, it isn't,' she exclaimed jerking away; 'it's mine; and if you think your hugging mother, I can tell you that you are very much mistaken.'

The matter was amicably adjusted before anything serious resulted.

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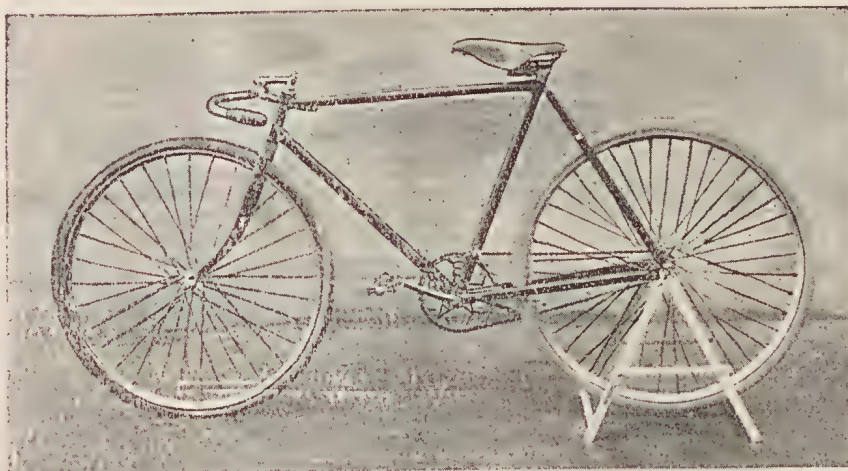
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April Number of

EDITION 1910

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry).

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QUERIES.—Readers are invited to send us queries on any matters on which they want information. No charge is made for the insertion of questions, but the following conditions should be borne in mind. 1. One question only should be written on one sheet of paper. 2. One side only of the paper should be written upon. 3. Querists must forward their names and addresses (not necessary for publication).

ANSWERS TO QUERIES.—The queries sent us will be answered by men who know the subjects, but at the same time we shall be glad to receive answers to any published from readers who can give the information asked for. Our aim is to get our readers to help one another, and no one is better able to help a small gardener than another owner of a small garden who has gained experience in dealing with the many difficulties that have to be faced.

GERANIUM CUTTINGS TURNING BLACK.

A. F., Wallaroo.—You have probably kept the Geranium cuttings too damp. Try again, and taking shoots getting firm; the soft green shoots at this

season will be liable to damp off. Mix some sand with the soil, and place a little on the top of the pot.

TOMATO FLOWERS DROPPING OFF.

'Belated,' Mitcham.—We think it likely your plants have made too vigorous growth, and that you have not kept them thinned enough, so that the flowers have not been able to set.

SALT APPLIED TO LAWN.

'Worm,' Payneham.—A heavy dressing of salt might well have the effect you describe, of causing the lawn to have a 'burnt up' appearance, but it will probably get all right again, and in any case there is nothing you can do now. As to the worm casts, we don't think the salt was the best treatment if you wanted to get rid of the worms, and we should have preferred lime.

STRIKING ROSE CUTTINGS.

H. S., Maylands.—Cuttings of Roses may be planted now, either in pots or in a sheltered, shady border. Select firm shoots of the current year's growth, and cut close to a joint at the bottom, and shorten the top, so that the cuttings may be about 9 inches long. Bury the bottom very firmly in the ground. Remove the leaves from the part buried in the ground, but leave the others, if there are any. Give a good soaking of water, and mulch with a little old leaf-mould or cocoa-fibre. Plant in rows 1 ft. apart, and 3 or 4 in. apart in the rows.

AILING LEGHORN.

A. H., Willamulka.—If your birds eat well, and there is no sign of anything being amiss with the throat, I should look upon the ailment as a mere cold, and this will probably right itself. It is nothing unusual to see fowls apparently well, but giving a croaking sound when moved. You may give the bird a teaspoonful of linseed jelly twice daily, or a little glycerine, to soothe the irritant

symptoms. If anything more serious shows itself, write again. Nothing injurious would be likely to arise from the scratching at the manure heap, unless some substance had been picked up which has become lodged in the throat.

GAS LIME.

'Young Orchardist,' Croydon.—Gas lime will injure everything it comes in contact with, and we should certainly advise you not to use it among your fruit trees, between winter greens, and above the bulbs. It would certainly injure bulbs, and you would be very fortunate if other things escaped, a good dressing of gas lime would be 4 or 5 tons to the acre. There is a great temptation to use drastic measures of this kind when tormented by snails and insects of various kinds, but we fear in many cases the remedy is worse than the disease. Adopt milder measures; ordinary lime could be scattered about with safety, and we think a few ducks turned out would give a good account of themselves.

EDITORIAL.

APPLE growers are now in the thick of garnering their fruit, busy as bees. In the study of human nature this busy time gives many opportunities to reflect upon the character and backbone of the country, the producers. As the collecting of fruit goes on the producer is subject to varying moods of satisfaction and degrees of disappointment. Altogether his crop is perhaps the best he has ever had, and calculated in money means more to him than any previous year. So far so good. But the backbone during the days of harvesting is subject to a good many twists and turns and bending, if not concussion by shock. In the first place there is the waste. Why should so much, so many thousands of bushels of fruit go to

waste. "Oh," says the careless husbandman, "that cannot be helped. There is always a percentage of fallings that cannot be avoided, and the best thing to do is turn them into pork. So if the fruit does not bring in ready cash as apples we get a lot of it back in pig, which means cash in another form." Quite so. But that is not waste. What we mean by waste is the better class of fruit that drops every morning and is allowed to go to the pigs when it may be carefully gathered and selected for the market. "Ah," says the astute orchardist, "do you think the market purchasers do not know a case of fallings when he sees them." Of course he does. But, again, the gardener is not careful enough to select the fallings that are fit for human consumption and those that are fit only for pigs. He treats the purchaser and the pigs both alike, which the purchaser naturally enough resents and will not pay. The refrain of the good housewife in the city at the present moment when apples are in abundance is that she cannot get a decent case of fruit. This is not theoretical fudge, but absolute fact. During the last few days we have met gentlemen who volunteer the information without either knowledge or bias upon the statement. One man, indeed, took a sovereign from his pocket and handed it to a grower with the remark, "Here, send some good fruit to my house." No question as to price or stipulation of any kind. He just wanted good fruit and trusted to the growers' honor to discharge the obligation. There must be any number of such opportunities for the grower to

dispose of his produce. The trouble, however, is that he is too busy with the oversea markets to bother about the trifling consumption of a few cases here and there. And there is where comes in one of his disappointments, and his satisfaction is just that though there is a lot of waste and the price of fruit for immediate consumption is low, he makes up for it in the aggregate price of his crop. The city consumer, however, finds no recompense in the satisfaction of the grower.

While the producer chuckles quietly up his sleeve at the sum total of his crop he looks with some chagrin at the fact that he might have done better. For instance, the codling moth and a number of fungus diseases have had a great deal more of their share than they should have had. There again the producer cannot blame the moth or the disease, though he always does so. The remedy is in his own hands, for by industrious regard of possibilities he could have done away with both the moth and the disease. His gospel should be that his trees are machines for producing a marketable fruit. If he were running a railway engine, or any other kind of a machine and neglected to clean and oil it and adjust any parts that were not working true his engine or machine would inevitably break down at some time or other, and most likely when he least could afford to do without its service. It is equally true of the apple-producing machine. It will not stand neglect. If it requires spraying oil it must have it, and at the right time. Equally if the moth is laying its eggs all over the tree, the fruit cannot resist

the consequences itself, any more than an engine can by itself resist rust. The tree must be cleaned and if the orchardist will not do it, and do it thoroughly, he must not be surprised if his fruit is rotten with disease, or if the inspector should happen along and demand that he should cut it down. The fault is clearly not in the tree itself.

And so the business goes on. If the man does not succeed he is ready to blame everybody and everything else but himself. He is particularly keen on blaming the man who handles the fruit after it leaves the orchard. The packer, the shipper, the home buyer, the merchant, the seller, all come in for a share of his anger and disappointment. No doubt the producer has a lot to put up with in carelessness of the hundred and one hands that have to deal with his goods before the actual money is placed to his credit, but all this being so he should be particularly careful to see that he is not wanting in the necessary industry and care in producing and marketing the very best article for consumption.



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A Few Choice Gloxinias.

The Flower Garden.

Notes for the Month.

— Keep on Improving. —

There are few gardens in which perfect form has been attained, and there are few who fully realise what an important part form plays in the garden landscape, and that the graceful curves and sweeps of lawn and border are as satisfying in a sense as color. Every year should see some improvements made in this respect another stage reached in the progress towards perfection. Besides effective and harmonious grouping of tree and scrub we undoubtedly want grace of outline—contour; and we want variety. We have had the whole summer in which to scan the garden features in the plenitude of bloom and leafage; we have had the opportunity to observe what it is, and to paint a mental picture of what it should be. Here is a straight line or an ugly angle that wants correcting. In another place perhaps there is monotony of forms; the border wants deepening and throwing out here and there. Yonder the lawn must sweep into the border, and so on until the right effect is produced. Or maybe we crave for change, and would alter the

design as we vary the color every year. The garden is plastic in the hands of a skilful designer. He alters a few lines, converts a portion of lawn into border, and border into lawn, and a transformation is effected. We have only to vary our scheme in planting the herbaceous plants and summer annuals to make it still more complete. If a garden is well designed in the first instance with a minority of paths, an absence of angles, and the utmost made of its space there can be no end to the variations of which it is capable. There are few perhaps who have such a craving for variety, but at the same time there is a great advantage in these experiments and continual alterations, for the happiest effect are often obtained by chance. Ever day Nature's great garden and our neighbour's gardens have some suggestion to offer us, and if we are not wise enough to register these hints where every day we turn the leaf to read them, and apply them at the first opportunity, we are not true gardeners.

Now, then, is the time to make our plans and put them into execution before the autumn rains make the work impossible and cause a delay. Peg out your outlines, and in forming curves the amateur cannot

do better than seek the assistance of the garden hose, for, with its supple substance it readily falls into the graceful curves one has in one's mind. Avoid insignificant turns and twists, let the curves be bold, free, and easy. Aim at broad effects, and avoid petty details. Where a large lawn is to be treated it should not be cut up into numerous little flower beds of elaborate design. Let larger beds occupy the space towards the verge of the lawn, and let these be just sufficiently large and just sufficiently varied to break up what might be a monotony of green. That sward and flower bed may delightfully mingle, and the eye catch glimpse of smooth lawn between and beyond. The beds may be formed in the shape of S's concave and convex crescents, and similar designs with bold, free curves throwing out an occasional arm far into the sward. But let there be no confusion of lines or undue encroachments on the lawn to destroy the sense of spaciousness of generous breadth which constitutes its chief charm.

— Look to the Lawn. —

English grass lawns can be prepared and sown this month. The utmost care should be taken in the preparation of the soil. The ground should be deeply trenched, and the subsoil broken up. A good garden loam, not necessarily very rich but containing a fair portion of humus, should be supplied to a considerable and equal depth all over. This is most important for the lawn is one of the first things to show the effects of a dry summer, and if supplied with a sufficient body of soil it is able to hold more moisture in reserve. A perfect level must be provided with the aid of a spirit level and other means, and all holes and hollows that may occur should be filled up with loam. Sow thickly with the best English lawn grass seed procurable, and cover it with a film of light soil. Roll the lawn before and after sowing, and at intervals during subsequent growth. It should be kept closely mown, and if this is done frequently the mowings may remain to enrich the soil. Other excellent fertilizers are wood ashes with a little bonedust or superphosphate intermixed, and an occasional top dressing at two yearly intervals of fine compost.

— Prepare for Shrub Planting. —

The season for tree and shrub planting being close at hand, the places to receive them should be thoroughly prepared. Where the whole of a bed or border cannot be trenched and the soil renewed a wide, deep hole should be dug for the plant right down into the subsoil. The poorest of the soil should then be thrown out, and a well prepared soil substituted. It is an excellent plan to fill the bottom of the hole with succulent green stuff from the rubbish heap. This makes a cool moist bottom of gradually decaying vegetable mould for the plant. This hole can remain open to await the coming of the tree, or can be filled up temporarily, and in any case is ready when the busy planting season arrives.

— Summer Annuals. —

We advised the sowing of many hardy summer annuals last month. If this has been neglected it should be attended to during the present month. The same remarks with regard to deep cultivation applies equally to these. The greater the depth of humic soil the more independent the plants will be of surface watering in the summer. It is always wise at this season to have a good supply of well-rotted manure on hand for the purpose of digging in and deepening flower borders. Two feet of good soil should be the minimum depth all over the garden.

— Sundry Work. —

The wind and heavy rain frequently experienced at this season make it necessary to tie up and stake many plants afresh.

Exhausted and dying plants, withered stalks, and all untidy matter should be promptly removed to prevent that bedraggled, unkempt appearance gardens too often present at this time of year.

— The Autumn Attractions. —

The Anemone Japonica is one of the glories of the autumn. Both the pink and the white varieties are quite hardy, increase rapidly, and are extremely decorative both for indoor and garden purposes.

Michaelmas Daisies or the Perennial Aster, besides their soft, nebulous beauty,

have also the virtue of flowering profusely at this season. They are best replanted every year after flowering. The roots increase rapidly, and a big root will divide into several plants.

Dahlias should still be making a display if the attention we have so often urged has been given them.

Chrysanthemum, the autumn queen of flowers, should now be justifying its title. They are always improved, even when only grown for garden decoration, by judicious disbudding. In doing so select the largest and most promising of the terminal buds, and reduce the side buds. Liquid manure, soot water more especially will intensify the color of the flower and give more on to the foliage.

— Roses. —

As May is a favorable month for planting and transplanting Roses the ground should be thoroughly trenched and drained now for their reception.

— Cuttings. —

Cuttings of hard-wooded trees and shrubs can be taken at this season.

— Hollyhocks. —

Hollyhocks, when they have finished flowering, can be cut down within 6 inches of the ground. To propagate them the root can be divided or cuttings taken off the basal shoots.

The Carnation.

Its History, Varieties and Uses.

[Extracts from a Paper read by W. T. Bell of Franklin, Pa., before the American Carnation Society, in convention at Pittsburgh, Pa., January 26 and 27, 1910.]

— Early History of the Carnation. —

The Carnation, or to express its name in strictly botanical terms, *Dianthus caryophyllus*, is, according to London, a native of southern Europe, and has been found growing naturally in England. The generic name, *Dianthus*, is com-



Yellow Ground Carnation.

pounded of two Greek words, meaning the flower of the Gods, or the Deity; which has led certain writers to call it the Divine Flower, a name which might well be exchanged for one more simple and comprehensible. The specific name, *caryophyllus*, has reference to the clove-like fragrance of the flowers; while the common name, Carnation, has for its base the Latin word 'carnis,' meaning flesh, in allusion to the pink or flesh color of the flowers in their wild state.

There are many different species in the genus *Dianthus*, including the familiar Sweet William; but the one that most nearly resembles the Carnation is the Pink, with its several varieties.

Where it grows naturally, the Carnation has single flowers, about one inch in diameter, having but five petals; but variation, selection, and cultivation have so changed its character that flowers four inches in diameter are now produced, having a very great number of petals.

The ordinary garden Carnation is a hardy perennial that blooms but once a year; the florist's Carnation of to-day is undoubtedly the result of changes that have taken place in its habits, through selecting and cultivating the most promising plants produced by natural variation, until now it may be had in bloom during the entire year; but in the evolutionary operation it has lost a portion of its hardiness, probably, because of the higher temperature to which it has been subjected for genera-

tions, during the cold season of the year; although this loss could perhaps be regained by reversing the process that brought about the change and gradually hardening the plant until it could withstand the rigors of our severe winters.

This change from summer-blooming to perpetual-blooming is not confined to the Carnation; but has been accomplished in the case of other plants.

Chrysanthemums have been grown from seed that was saved from the ordinary seasonal-blooming kinds, that have developed into varieties that have been had in flower every month of the year, and the Rose is one of the most familiar examples of a plant that has been changed from an annual to a continuous bloomer through the treatment accorded to it under modern methods of culture.

— The Carnation Then and Now. —

The Carnation flower to-day, and especially in this country, is the most popular flower produced by the florists, having overtaken and passed the old-time favorite, the Rose, in the race for popular favor, and instead of being referred to as the divine flower it might very truthfully be called the people's flower.

To become really popular, a flower must possess several of the following qualifications, the first of which is beauty, a somewhat indefinable and elusive quality. In addition, it should have a pleasant odor and be capable of being used in a variety of ways and for various purposes.

Its texture should be such that it will remain in fairly good condition for a reasonable length of time, and its successful cultivation should be so simple that it can be grown and sold profitably at such a price that the ordinary flower-user can afford to buy it freely. All these various requirements are possessed by the Carnation, and, in addition, it may be procured at any time during the entire year.

Roses, Violets, Lilies of the Valley, Chrysanthemums, and many other flowers will continue to have their admirers, and will always be in demand, when in season; but some of them are

difficult to produce with profit and the most of them are more expensive, bulk for bulk, than are carnations. Several years ago, at one of the conventions of the Society of American Florists, an essayist seemed to think that, in a few years, Orchids would become as plentiful and popular as Roses; but the prediction has not been and will not be verified for two reasons; first they are more difficult to cultivate and produce and, second, because of this difficulty their price will never become popular.

The development and improvement of the Carnation have taken place with comparatively recent time, both as regards the size, colour, and quality of its flowers and the number of desirable varieties. Thirty or forty years since, the florist was confined mainly to such kinds as Edwardsii, De Grauw, La Purite, Miss Jolliff and Astoria.

Buttercup one of the best of the earlier yellows, although like most of the later kinds of that colour, decidedly bizarre came later, and was followed by Grace Wilber, Albertini, Mrs. Bradt and a host of other slowly improving kinds, until the lift of aspirants for a place on the Carnation stage reached well up into the hundreds.

Daybreak, originated and disseminated by Simmons of Geneva, Ohio, was one of the best and most profitable Carnations of its day, which is now over, and was probably one of the progenitors of the fine variety Enchantress and other kinds having the Daybreak shade of pink. William Scott was another easily grown and useful sort, but it, too, is now eclipsed.

While the Carnation is not a native of this continent, certain writers speak of the varieties now in conclusion here, collectively, as the American Carnation; but a better term would be in American varieties of Carnations, as they nearly all originated here.

At the Royal Show, held at Newcastle-on-Tyne, England, in 1908 and practically open to all exhibitors, many vases of British Carnations were shown, having, in the main, stiff stem, and large flowers; but the flowers were nearly all of coarse texture, and the most of them had split,

calyces; decidedly the finest Carnations in the great Show were those of American origin.

— Its Value in Decorations. —

Carnation flowers may be appropriately used on many occasions and in a variety of ways; from a single flower on a coat lapel to the most elaborate floral design or other form of decoration.

They are welcomed in the sick room, or the hospital ward, are suitable for the placements or the centerpiece for the dinner table, and clusters or sprays of the flowers, when arranged with taste and skill in combination with a sufficient amount of suitable greenery, are much asked for and appreciated for funeral occasions; while no flower can be used to better advantage in a pleasing arrangement to place beside the door of the house where death has entered in lieu of the somber crape; and, because of their excellent lasting quality, they are one of the very best flowers to use to send a long distance, or when they are required to be kept for a considerable time before being used.

If it were not for being so wasteful many of the arrangements of Carnation flowers would be improved in appearance if Carnation buds and foliage were combined with the flowers.

For the uses enumerated, the Carnation flowers should be of good quality; to produce such, the propagation and culture of the plants, and the gathering and care of the flowers after being grown, must be carefully and properly attended to, necessitating unflagging attention on the part of the grower. This is not alone the case with the Carnation plants and flowers but applies as well to all the stock in the florist's domain, a fact which all plant-men do not seem to appreciate.

If eternal vigilance is the price of liberty, it is no less the price of good plants and flowers; the difference in the success of various florists may generally be ascribed to the continuous care bestowed on his stock by the successful grower, and the intermittent care and partial neglect in this respect, of his less successful neighbour.

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HINTS ON THE CULTIVATION OF CARNATIONS.

Carnation growing of late has made rapid improvements.

The old varieties are very rare in an up to date growers' garden.

The perpetual varieties are most popular for their continual blooming.

Spring varieties produce beautiful flowers for the Spring Shows, but after that season very small results are obtained thus making the Perpetual varieties sought for.

Carnations may be grown successfully in almost any soil, providing it is prepared with a knowledge of their requirements.

Carnations require to be grown from the shade of trees and high fences, to keep them healthy and free from disease.

A convenient size bed for the Carnations to grow in is about four feet wide and as long as the garden will allow.

This enables the grower to get about the plants to tie them up or do anything in connection with their requirements.

The best soil for the carnation to grow in is a stiff loam with enough grit in it to make it friable.

When digging up the bed avoid bringing up subsoils, and raise the bed a few inches above the path to avoid an excess of moisture. Although Carnations love water they cannot thrive with swamping.

Should the soil be light add anything in the way of decayed cow manure or garden refuse well decomposed, heavy loam, or clay.

If on the contrary the soil is stiff, give a good coat of lime, wood ashes, or sand, and dig well in. Make a rule to have the beds made a week or two before planting.

— Manure. —

The most practical way to use manure is to judge yourself the condition of the soil, and work into the bed bone dust or bone manure not too fine ground up to half pound per square yard.

Avoid at all times strong chemical manures unless you plant the Carnations as annuals.

Best liquid manure is made from cow manure.

The steady growing of the Carnation is most preferable. When the plants show a blue-green sheen on the foliage, they are doing well.

— Pests. —

Although the Carnation is a hardy growing plant, it is not without its pests.

Thrip in the springtime is most troublesome. It will spoil the best of flowers if steps are not taken in time to check them.

Gishurst Compound, used as per directions on the box once or twice a week, is one of the best remedies. The best time to use this preparation is in the evening, and when the plants are showing the buds. This remedy is also a great check on the small black ant.

— Preparing for Exhibition. —

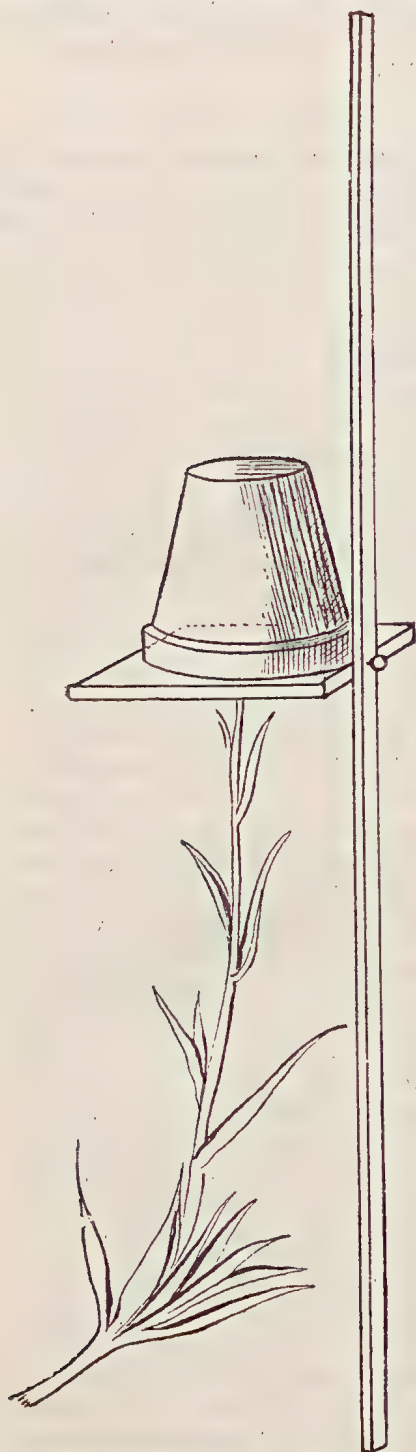
In preparing the buds for exhibition it is well to thin them out, leaving from four to ten buds, according to the strength of the plants, leaving crown buds to flower. These should be set up into brackets (as illustrated) before the buds commence to open, using air-tight flower pots to cover them. This mode of covering protects the flower from the weather and pests, and allows the flower to develop to its full size. It is most interesting to look at the flowers in their different stages.

Should the black ants find their way into the brackets after the flower, tease out a small piece of cotton wool and cover the flower up. This prevents the ants from getting into the flower to carry on its destruction.

The Carnation bracket is my own manufacture.

— Rust. —

This is a round swelling of the leaves, which afterwards bursts and sets free more spores of the fungus. The most effective way to deal with it is to cut the affected leaves off and burn them. Give frequent dustings of fresh lime. The same applies to Spot, which is noticed as purple spots, chiefly caused through dampness in the cold wet months.



Carnation Bracket in Position.

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Marguerite Carnation.

— Dressing Blooms. —

I strongly object to this practice. It is not sportsman like to do so. Exhibit the flowers as you have grown them; it is more satisfactory to your neighbor, and to your credit and honor.

Carnation growing should not be brought down to making the flowers. Keep the cultivation of the Carnation as a hobby; the game will last much longer, and the competitions will be most keen and sought after.

— Pruning. —

This is a very important item. Take away all dried shoots and flowers, keep young wood going, and your plants will be very little trouble. After spring flowering season most work will be found.

— Propagating. —

The Perpetual varieties will strike root readily from cuttings taken from the flower spike. Pull the cuttings off and take away the lower leaves, place in a box about seven inches deep containing sharp sand half its depth, cover the box with glass, and keep in a shady place, keeping the sand moist. Dry the glass daily, and remove the same when the cuttings begin to grow.

Spring flowering varieties will give the best results from layers. Choose healthy

young wood for the purpose. Choose healthy young wood for the purpose, clean away all dry leaves, etc., make a slit underneath about one inch long, and pin the same down, covering the layer with sand or light soil.

W. D. ROBINSON.

Highgate, South Australia.



Scarlet Flake Carnation.

A Deadly Blossom.

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Lawn Decoration.

A paper by Edwin Lonsdale, recently read before the Florists Club of Philadelphia:—

Lawn adornment opens up a very wide field, altogether too wide to be considered at all satisfactory in the brief space that may be allotted to its consideration this evening: so the best that can be done with so important a subject under existing conditions is to give the same a "touch and go" treatment.

The first thing that naturally suggests itself when considering the embellishments to a lawn is the production of an inviting and restful effect, and the very best material to make use of is shrubbery and shade trees judiciously planted; and what is of equal importance is a seat here and there; let these be as informal, or as rustic, yet as comfortable for the purpose intended as it is possible to have them. Let shrubs, both the deciduous flowering and the ornamental evergreens, be disposed as nearly with natural effect as possible. Many of the strong growing grasses add a grace to any plantation that nothing else can give.

Do not dot plants on a lawn unless the planting is made to appear to have naturally escaped from a nearby group. I once saw a lawn planted with such regularity that in the distance the bushes had the appearance of cocks of hay.

Let the shrubs occupy space on the extreme outsides of the lawn, avoiding straight lines in the planting in all cases, and allowing sufficient space between each plant for future development. For a few years after planting, what may seem too much room may be occupied with such flowering annuals as may suggest themselves to those who have the work in charge, and the more lasting hardy perennials could to advantage be interspersed between.

Great care must be exercised in the association of the varicolored annuals and the perennial flowering plants to avoid clashes in coloring. It is, by far, easier to avoid color clashes in the tender bedding plant combinations than it is with the hardy out-door flowering plants,

although too often we see the scarlet zonal pelargoniums and the magenta pink colored varieties of the same in too close proximity with each other to be harmonious.

Vases judiciously placed—which means never in the centre of a plot or lawn—and where water is of easy access so as to give an abundance when requisite; which is generally once a day and frequently twice are oftentimes very effective; especially is this the case on the edge of a pond or lake; but by all means refrain from planting purple petunias in the same vase with scarlet geraniums or any other colors with which they may produce discord.

Many of my hearers will remember that strong paper read at a convention in the early history of the Society of American florists, held in Buffalo, N. Y., in which the essayist advocated the omission of all flowering plants from lawns and pleasure grounds, and having nothing but grass, trees and shrubbery, and it also will be remembered what an uproar there was all over the country in vigorous protest. Only last Summer, a lady visitor at Girard College, on entering the lodge gate stood and, in no unmistakable terms, declared: "What a pity to cut up the lawn and plant thereon those horrid geraniums." And so it goes! It is impossible to please everyone!

The cactus bed which we have in Girard College grounds attracts more attention than all the croton, geranium, or miscellaneous beds combined.

The president of Girard College, only a short time ago, said with much apparent gratification that the 'front' never looked better. While the too plentiful use of the scarlet geranium—zonal pelargonium—may not be considered used in the very best of taste as we have it this year, I believe its very brilliancy in coloring in the past has attracted the attention of many persons to the gardening, and when once a person's interest has become aroused in gardening the rest is easy. The end has justified the means. It has acted as a means to an end, and as a primer, as it were, or rather as a kindergarten to aid floriculture.

In a public, as well as any other garden

the geranium appeals to the popular fancy, and for that purpose I believe it will hold its own for a very long time to come.

Personally I have no use for the pink varieties; for the most part because they do not harmonize with the brighter reds or scarlets. At one time I did not like the salmon tinted varieties of the geranium, but now I welcome them because they harmonize with the brighter reds or scarlets. There is no color clash with these brighter colors, provided the blue combination is kept in due subjection.

It should be understood in this connection that the landscape gardener has completed his work, though one suggestion I will venture to propose, and that is, when space admits, a triangular tree plantation be made, not too far away from the residence, and that these trees be the pin oak—*Quercus palustris*. Where those trees render a good account of themselves, or when some better tree for a given locality suggests itself, let them be planted at least 16ft. apart, in triangular form. Those of my hearers who contemplate such a planting will be surprised how amenable they will be to the proscribed landscape effects, and, what is of equal importance, after they have had a few years' growth they may be brought into requisition as hammock supports. Three trees properly disposed will support, or rather furnish supports for, three hammocks, which will undoubtedly furnish another point in the restful effect so much desired in all lawn adornments.

The planting of flower and foliage beds in lawn adornment is considered to be worthy of our best thoughts. Especially does this apply in public and semi-public gardens connected with our popular institutions. In the Girard College grounds, with which yours truly is connected, the idea is to make as much display with the plants we have on hand as possible, and we proceed as follows: In the spring time we plant plant pansies, forget-me-nots, *Alyssum saxatile* and *Arabis alpina* between, and associated with, tulips, hyacinths, etc., planted during the late October and early in the November previous. This combination for

spring flowering is very effective, Wallflowers are also found to make good for Spring bedding when planted as above indicated between bulbs of last Fall's planting, or for independent planting in unoccupied spaces. Wallflowers sown late in June or early in July, if taken care of as to transplanting once or twice, will make very effective planting for Spring work, and for summer blooming there is nothing superior to geraniums. And when we desire foliage plants nothing is comparable to crotons; the surprise is, judging from how well these showy leaved plants cover themselves with glory in and around Philadelphia, that more of them are not used elsewhere. Cannas as a large flowering plant for distant effects, are most satisfactory; and, as edging plants, nothing is superior to Abutilon Savitzii, which gives the 'white line' more effectively than any other plant I know. Echeveria and alternanthera are much used where formal designs are desired, but these are being used less and less as truly artistic instincts are developed, and the time is not far distant when the formal flower bed will be a thing of the past.

— Florists Exchange.

A Succession of Blooms.

There is no reason why every garden in the State should not present an attractive appearance for 10 months out of the 12. In May and June no great variety need be expected. The judicious cultivation of geraniums will prevent an absence of color during those months. Early planted bulbs will provide a good display in July and August. As they begin to wane in September hardy annuals, sown late in March or early in April, will make the garden bright and attractive until the spring roses appear. When their period passes, and the flowering of the spring shrubs has ceased, successions of hardy and half hardy annuals grown for the purpose will bloom until the tender sorts such as petunias, balsams, zinnias, sunflowers, asters, phloxes, etc., furnish flowers in January and February. After that gladioli, cannas, dahlias, chrysanthemums, and roses will hold sway until the dull months of winter close in. A gardener should plan out 12 months work in advance.

Evergreen hedges and shrubs that are kept closely clipped should be gone over for the last time this season, as they will not make much more growth.

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Celeriac.—Turnip-Ribbed Celery.

Swede Turnip.—Purple Top.

Turnip.—Early Stone, Golden Ball, Snowball, Orange Jelly,

Early Six Weeks, Purple Top.

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Scotch Kale.—Tall and Dwarf.

Radish.—American Knickerbocker, Cardinal, Crimson Giant.

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Wayville:—Gentleman's Residence, 7 rooms, hot and cold baths, gas right through, numerous offices and out buildings, beautiful overmantle, double lawns and standard roses, full-bearing fruit garden; £130 cash, balance £740; terms.

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Four rooms and kitchen; £460. seven rooms and kitchen; £575. Henley Beach—Building Blocks, 20s. per ft. East of King William St.—6 sound stone cottages, rents £124 per annum; price £1,050.

Near Car—8 rooms, all stone, coachhouse, conveniences, fruit garden, gas, invite inspection, £850.

Walkerville—6 rooms, con., fruit trees; £400

Unley—D. Front, 5 rooms, 56 x 150; £450, and £50 deposit.

Prospect:—close car—7 rooms, modern, all stone; 100 ft. front, more availab

planted mixed fruits; splendid order.

5 ac., River Frontage.—3 miles out, 500 fruits, including oranges, full bearing, good house, irrigation plant.

Some splendid 9 roomed houses, North Unley, and facing Park Lands, extra large rooms.

Wayville—7 and 8 roomed houses, facing Park Lands.

Six Stone Cottages, newly papered throughout, over 11 per cent., and many others.

4 roomed Cottage, Freestone front, close 1d section, over 10 per cent., £250

About Vegetables.

The Kitchen Garden.

—:O:—

Operations for the Month.

— Seed Sowing. —

Seeds of any of the following may be sown during this month :—

American Cress
Broad Beans
Broccoli
Brussels Sprouts
Cabbage
Carrots (early sorts)
Cauliflower
Celeraic
Celery
Chervil
Corn Salad
Cress
Endive
Herbs (various)
Java Radish
Kale
Kohl Rabi
Leek
Lettuce
Parsley
Parsnips
Peas (early sorts)
Portugal Cabbage
Radish
Rampion
Rape
Red Beet (Long and Turnip)
Salsify
Savoy
Scorzonera
Sorrell
Spinach
Turnips
White Beet

— Planting and Transplanting. —

Plant early Potatoes; also Potato Onions, and Tree Onions.

Transplant Cabbage, Cauliflower, Celeraic, Celery, Chives, Herbs (various), Horse Radish, and Lettuce plants, and Mushroom Spawn.

— Preparing for Winter. —

As winter approaches our chief concern in cultivating is to keep the soil warm and sweet. Any beds that are being formed at this season should be so arranged as to attract heat and throw off moisture quite contrary to the summer arrangement. Ridged land is always preferable for vegetables, being drier and warmer owing to a greater extent of surface being exposed to the sun. Perfect drainage is essential to successful vegetable culture, and, therefore, existing drains should be looked to, to ascertain that they are working properly, or a good system provided where this has been neglected.

— Push on with your Sowing. —

This is a season very favorable to the production of vegetables, because there is both heat and moisture to promote vigorous growth. Plentiful sowings can be made of all the vegetables tabulated in the preceding column.

— Keep the Hoe Going. —

Hoe continually among the crops to keep them clean, and have beds well dug and manured for transplanting the various vegetables now coming on. Thin out all crops which are overcrowded.

— Tomatoes. —

Early Tomato plants will be getting shabby-looking by now, and so few of them will be in bearing that they will not be worth the ground they occupy. If the stakes are to be removed from them for extra late plants it would be as well to treat them to a bath of boiling water or some fungicide.

— Turnips. —

Full sowings of Turnips should now be made. To have the bulbs crisp and tender the soil must be rich and in fine tilth. Rank stable or farmyard manure must not be used on Turnips, unless it is dug in and thoroughly incorporated with the soil several months beforehand. Its late use on the beds will cause the plants to produce heavy bunches of foliage and correspondingly small bulbs. Turnips should not be sown in plots previously occupied by Cabbages or any other

Brassicas. They make a suitable succession to Peas and Beans. Turnips will give good results in any kind of garden soil that has been well worked. They succeed best in light sandy situations. The seed should be sown in drills about 15 inches apart. A covering with half an inch of fine soil is sufficient. As soon as the young plants are fit to handle, they should be thinned to 3-inch intervals. Superphosphate is the best artificial fertiliser to use on Turnip beds. Bone-dust and other nitrogenous mixtures will cause the bulbs to split. Too much watering is not good for Turnips. The ground should be no more than moist. In well-cultivated soil Turnips should mature in about eight weeks. Swedes must be given more space than the white sorts.

Milk from the Soya or Soya Bean.

The Japanese (says an exchange) manufacture considerable quantities of milk from the Soya Bean, which is said to be very nutritious. The process followed is simple, as the following paragraph shows :— 'The Beans are first of all softened by soaking, and are then pressed and boiled in water. The resultant liquid is exactly similar to cow's milk in appearance, but is entirely different in composition. The Soya Bean milk contains 92.5 per cent. of water, 3.02 per cent. albuminoid, 2.13 per cent. fat, 0.03 per cent. fibre, 1.18 per cent. non-nitrogenous substances, and 0.41 per cent. ash. Some sugar and a little phosphate of potassium are added in order to prevent the elimination of albumen, and then the moisture is boiled down till a substance like condensed milk is obtained. This condensed vegetable milk is of a yellowish colour, and has a very pleasant taste hardly to be distinguished from real cow's milk.'

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Cut Soles a Speciality.

INSECT FRIENDS & FOES.

[By G. H. Webster.]

Entomology is undoubtedly an important branch of garden craft, the study of which gardeners can undertake during the natural course of their duties. The gardener who has studied the life-history of the various insects that attack garden crops is more successful in exterminating them than the gardener who relies on the rule of thumb. Then, again, without careful observation and study the few insect friends are liable to extermination.

— FRIENDS. —

— Bees. —

Bees are undoubtedly the most important insect friends of the garden, either the familiar humble bees or the common hive bees. These insects have played an important part in the evolution of fruits and flowers. Of the wasp tribe the small solitary wasp, which is often seen in the summer, is a useful friend in the garden, as it collects caterpillars for the food of its own larvæ. These small wasps generally make their burrows in sandbanks, and are distinguishable from the common wasps by their smaller size, large heads, and broad stripes of black on their sharply-pointed abdomen. The common wasps, although they wage war upon various injurious flies, cannot be included in the category of friends on account of their depredations upon ripening fruit; in this case, to use an old adage, the remedy is worse than the disease.

— Lady Birds. —

Coccinellidæ (Ladybirds) should be by all means protected. They feed voraciously upon aphides, especially during their larval stage.

— FOES. —

— Aphides or Plant Lice. —

These are probably the most common of insect foes, as nearly all plants are liable to their attacks. They damage plants in a twofold manner—first by sucking out the sap and so weakening the vitality of the plant, and secondly, by

interfering with the functions of the foliage by blocking up the breathing pores with their excreta. The effect of weather on aphides is great. Dry, hot and sultry weather is favorable to them; the same conditions check the growth of the plant, and so the plant lice soon overcome it. Aphides are easily destroyed by spraying with a soft soap wash. In the case of Bean aphids, the best plan is to cut off the tops of the Beans immediately the pest is noticed and burn or destroy in some way before the aphides can leave them.

— Red Spiders or Spinning Mites. —

Red Spiders are serious pests to get rid of when once they get a fair start. Fruit trees and bushes are frequently seriously damaged by their attacks, which are most prevalent during hot, dry summers. When a drought commences and there is a probability of it continuing, frequent syringings with cold water will often prevent an attack. When the webs are well established the most drastic syringing is often unsuccessful. The following wash is very effective when the pest has made its appearance. Mix 3lb. of soft soap and three gallons of paraffin with fifty gallons of water. The soap is dissolved first in boiling water and poured into the tub containing the paraffin, the whole being churned up with a syringe. The mixture is afterwards diluted to its proper strength. It is important that soft water should be used for this emulsion. Sulphide of potassium is also added at the rate of 1 lb. to 50 gallons of wash. Apply two or three times in succession at intervals of three days, always with force.

— 'The Garden.'

NEXT MONTH

the following pests will be dealt with:—

- The Cabbage Moth. —
- The Cabbage Root Fly. —
- The Celery Fly. —

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Sprayers.

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Arsenate of Lead

An infallible insecticide for all leaf-eating insects, including Codlin Moth, Potato Bug, Curculio Beetle, Apple Root Borer, etc.

Does not burn the foliage
Gives rise to no poisonous dust
No danger to the sprayer
Adheres firmly to the leaves
Mixes with water in any proportion

One pound of Paste makes 30 gallons of Spray.

No Lime Required.



The Orchard.

Notes for the Month.

— Prepare for Planting. —

Those who intend planting fruit trees next month should now be making a thorough preparation of the soil. It is important to get this done before the heavy autumn rains render the soil heavy and unworkable. Thoroughly trench the soil and break it up to subsoil, and enrich with heavy dressings of manure and lime. The latter is most valuable property in winter, keeping the soil clean, sweet, and warm. It is especially necessary to stone fruits. In the absence of lime, powdered mortar and wood ashes should be supplied.

— A Useful Tip. —

Where an old tree has been grubbed out and its place is to be taken by a young tree the hole should remain open for a time to allow it to become sweetened by exposure to the weather. The debris at the bottom of the hole should be destroyed by fire, which will also help to purify the spot, and the ashes that remain will be very beneficial. The hole can be filled up with new and well-prepared soil at planting.

— Root Pruning. —

Root pruning is not a common necessity in this country, but it is occasionally advisable in the case of coarse, overgrown trees in a deep rich soil where they are continually growing and wood forming at the expense of fruit failures. Pear, plum, and lemon trees are the subjects that require

it most. It can be done by digging a trench 3 or 4 ft. from the trunk and to a depth of about 2 ft. This should expose the main roots, which can be shortened back. The tap root must then be searched and removed. Fill up the trench with fresh soil. The first growth of a tree is the strongest, so that where the roots are pruned in this way the resulting growth will be of much lighter character. In the case of young trees, lifting and replanting will often impose the necessary check.

— Pruning. —

Bush fruits can be pruned when the leaves have fallen.

The gooseberry bears its fruit on last season's shoots and young healthy spurs. The pruning consists in shortening shoots, thinning out spurs, and removing suckers and dead wood. The branches should be well spaced, and not allowed to crowd.

The red and white currant bear on light wood of any age. The pruning consists in keeping the bushes clean and healthy and getting rid of all crowded wood and weak stuff.

The black currant bears its fruit on last season's growth. We have to leave the wood of longer growth than with the other varieties.

Peaches may still have some of their light superfluous wood removed to enable the successional shoots to become thoroughly ripened. Old bearing growths, weakly, crowded, ill-placed shoots can also be removed.

— Spraying. —

Red spider is always active and destructive at this season. A moist atmosphere and spraying with water will hold it in check. There are many advantages in spraying fruit trees at this season. A stronger spray can be used now in the spring, when the leaves are tender, and there is also more time for the work. Shothole, rust, black spot, scale, and black aphid and woolly aphid are all more or less calling for treatment now according to the nature of the season.

— The Vines. —

The principal work in connection with vines at present is to remove damaged and useless branches of grapes, and to

keep the soil about them clean by removing decaying fruit, leaves, and other litter that would soon choke and sour it and spread disease.

Faking Blood Oranges.

The 'Presse Médicale' says that blood oranges are often faked in Northern climes, where they command a higher price than the ordinary orange.

In order to transform the latter into blood oranges, certain 'manufacturer' inject to the orange, through the rind, with the aid of a syringe provided with a fine needle, a solution of red aniline dye, mixed with a saccharine solution. Now recently, in St. Petersburg, a lady bought from a fruit merchant a dozen of these pseudo blood oranges. She gave one to her daughter, who was at once attacked on putting the first piece into her mouth by a sharp pain in the pharynx, and spat blood. A doctor was called in, and he diagnosed the pain and the hæmorrhage as having been caused by a fragment of a needle which had lodged in the mucous membrane. When this fragment was extracted, it proved to be the point of a Pravaz needle, in the eye of which was found as small remaining portion of aniline dye.

On returning to the orange dealer, he revealed that the 'dodge' is often resorted to in manufacturing blood oranges.



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W. GILL,]

Telegraph Poles "at the Stump" (21 years old), Bundaleer Forest.

[PHOTO

Plant Bug Pests.

(By Walter W. Froggatt.)

During the last few months the most general, widespread, and injurious insect pests (after the pumpkin beetle) have been several species of plant bugs.

While the order Hemiptera contains some carnivorous bugs which destroy plant-eating insects, such as the very useful vine-moth bug, there are among the plant-destroying species some of our most noxious insects, and these are very difficult to deal with in a satisfactory manner. They do not eat the surface of the bark or foliage, but, furnished with a sharp pointed beak, they press it through the skin and draw up the sap beneath. It is therefore no use spraying the foliage of the infested trees with any arsenical poison to kill them. Again, they appear, like the Rutherglen bug, in countless millions, are very active, covered with a stout shield-

like covering on the back, and discharge an offensive fluid from the glands of the body producing a "buggy" smell, which renders them distasteful to birds and other predaceous insects that otherwise might feed upon them. They are not only found on the exposed surface of the plants, but cluster under the foliage and often swarm upon the ground, sheltered under the growing plant.

The most effective contact poison is kerosene emulsion, but it should be sprayed well under the plants as well as over them. If done early or on a dull day it will give the best results, as the bugs are then not so active as later on.

When the plants are in rows, a shallow dish containing oil and water can sometimes be dragged up between the rows, and the bushes or plants beaten with brooms or branches so that the insects fall into the dish and are killed in the oil and water placed in the bottom. Smoke may also be used with advantage, parti-

cularly on a small plot in a garden; but the smoke only drives them away, and does not kill them. Clearing up and burning all the rubbish and grass round the crop, in which they often seek shelter before coming into the cultivated crop, and wherein they often deposit their eggs, will be a great help in fighting them.

When fruit-trees are infested with them, a large shallow dish should be made out of a sheet of iron, with the edges turned up so that it will contain an inch or two of water with a skin of kerosene on the surface. Half a pint of kerosene will cover a large dish. This dish, used like a hopperdozer, is dragged under the tree and each branch is jarred over it. Wrap a pickhandle or a stout stick with a bit of bagging (so that the bark is not bruised), and use it as a club, tapping each branch sharply. The jarring does not shake the more or less ripe fruit off, as shaking the branches would do. It is an unnatural shake to the insects, which are



W. GILL]

View looking down Firebreak, Plantation H., Wirrabarra Forest,
showing Remarkable Pines (*Pinus Insignis*), 19 years old.

[PHOTO

used to the shaking of the wind, but not to the sudden jar, and they fall much quicker in consequence. The dish can be emptied as the bugs accumulate, and recharged. If this work is undertaken early in the morning when the pests are resting, very few will attempt to fly.

A sheet spread under the tree and wetted with kerosene emulsion, of which a canful can be kept alongside to sprinkle the fallen bugs from time to time, will act instead of the "hopperdozer dish," and may be more handy on rough ground.

The bugs which have been so troublesome this season are :—

(1) The Rutherglen Bug (*Nysius vinitor*).—A tiny silver-grey bug, that swarms on tomato, potato, lucerne, wheat, and other crops, and in orchards sucks the sap of ripening fruit and grapes.

(2) The Brown Ground-Bug (*Dictyotus*

plebijus).—These live among dry rubbish on the ground, and from some unknown cause have become so abundant this season that they swarm in wheat-fields, and are damaging fruit. It is a dull brown colored bug, under $\frac{1}{2}$ of an inch in length, broad in front behind the head, and angular to the tip of the body. It is a pest in the southern and western districts.

(3) The Cherry Bug (*Peltophora pedicellata*).—This is one of the larger, rich metallic-green colored, oval-shield bugs, up to $\frac{1}{2}$ of an inch in length. It is common in the Gosford district, and has a wide range. It confines its attention to ripening fruit.

(4) The Bronzy Orange Bug (*Stilida indecora*), which is often very troublesome on the Northern Rivers. They cluster round the base of the stalks of

the fruit, and by sucking up the sap cause the fruit to drop before it is ripe. This is one of our largest shield bugs, of a general metallic bronze-brown tint. Fumigation with hydrocyanic acid gas has been used successfully against this pest, and might be used under favourable conditions with some of the others previously noted.

—'Agricultural Journal' of N.S.W.

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The Wonderberry.

E. E. Prescott, principal, School of Horticulture Burnley.

A considerable amount of attention is at present being devoted in the columns of various horticultural papers to one of Luther Burbank's so-called innovations—the wonderberry. This plant is catalogued and sold by various seedsmen and nurserymen as one of the "latest creations" of the "Wizzard of America"; and as it is now being grown in Australia, it is well to know somewhat of its history. It is an annual, and requires to be propagated from seed in the springtime. Burbank hybridised two varieties of *Solanum nigrum*, the Black Nightshade, which is so very common all over this State, and, as a result, produced the Wonderberry. Of it, he says—

This new species bears the most delicious wholesome, and healthful berries in the utmost profusion, and always comes exactly true from seed.

Prominent British horticulturalists had their doubts about this berry, and plants were grown side by side with several forms of *Solanum nigrum* to test its value. The berries when ripe were forwarded to Dr. Greshoff, of Haarlem, one of the best known authorities on vegetable poison. His report appears in the issue of the 'Gardeners' Chronicle,' of 30th October, 1909; and he says that he cannot recommend the issue of these fruits as food; because although they may differ in the amount of poison they contain, according to the traditions under which they were grown, it will always be dangerous to eat them, and especially so for feeble children.

Dr. Greshoff also says that the poison contained in the fruit that is known as Solanin; and of the varieties analysed, the most poisonous was the Wonderberry; So that the Wonderberry is nothing more or less than a slightly variable form of a plant reputed to be poisonous, certainly dangerous at various stages, while harmless at others, which has been growing in profusion for years past on our rubbish heaps and other places where weeds abound. In any case there are dozens of other and

better and more useful fruits for human consumption without having recourse to such a plant as the Wonderberry. Plants of it are now being grown at the Burnley Gardens for experimental purposes. Up to the time of writing no fruit has yet appeared on them; but the plant itself appears to be identical with the common Black Nightshade, both in habit of growth, in foliage, and in flowers.

The Loganberry.

Among fruits of the berry class, the blackberry and the raspberry have long been the popular favourites. Both fruits are easily cultivated, and both are enjoyed as luscious and delicately flavoured fruit. They readily lend themselves to cross fertilization, and quite a number of new varieties of small fruits have been introduced to cultivation and are now in prominence as a result of this hybridization. Chief among these blackberry-raspberry hybrids are the Dewberry, the Phenomenal, the Mammoth, the Primus, and the Loganberry. These fruits are all of American origin; the Dewberry being an improved variety of the American trailing blackberry; Phenomenal and Primus being two hybrids produced by the world-famous plant originator, Luther Burbank; while the Mammoth and the Loganberry were raised by Judge Logan, of Santa Cruz, California.

The Mammoth was the successful result of cross fertilizing the native American blackberry with one of the early raspberries; but the Loganberry was the chance hybrid, being the result of natural cross pollination, also between the native blackberry and one of the cultivated raspberries. The seeds of the native fruit were sown by Judge Logan for experimental purposes, with the result that one of the finest of berry fruits was produced and perpetuated. Most of these fruits are on sale at various Victorian nurseries, but the one that has come more prominently into favour than any other is the Loganberry. This fruit first originated in 1881, and was introduced into Victoria some years later.

The Loganberry is of a robust hardy nature, and the plant partakes more of the parental characteristics of the blackberry than the raspberry. Its strong rambling nature makes it a plant easy to establish, and if grown on trellis, or on fences, is easy to control, and is far less likely to become a pest than is its parent the blackberry. As an ornamental plant it will become very useful, as its handsome foliage makes it a striking object when used either to cover old logs or fences, or as a plant for pillar climbing.

In the southern parts of Victoria, it seems to thrive equally in sheltered and exposed positions. A fence at Ivanhoe, near Melbourne, covered with this plant, is thriving and producing good fruit in a fully exposed position to the north winds, and to the hot sun all day long. The fruit is larger than that of the raspberry, more resembling the blackberry in shape, dark red in color, and with a flavour suggestive of both fruits. The flavour is more piquant and acid than that of the raspberry; and the berry does not possess at all that peculiar flavour that is so distinctive to the raspberry. For this reason it is frequently preferred, and there is no doubt that as the Loganberry becomes more known, it will become a serious rival to the popularity of the raspberry. The individual fruits are generally about 1 in. long, and very frequently they are found 1½ in. in length. The bunches are numerous and produce a good quantity of berries. Its strong sturdy nature and vigorous growth are points in its favour, and against the raspberry, as it, so far, does not seem to be at all liable to attacks of the root-rot fungus, *Armillaria mellea*, which is so destructive to raspberry plantations.

This plant will thrive successfully wherever either of its parents are grown, a deep alluvial soil, well-worked, to allow a cool root run in summer, and a sheltered position being most suited to its requirements. A fair amount of irrigation will cause the plant to yield a generous crop of an excellent sample of fruit. Being of a vigorous habit, and producing canes at the same time as it produces its fruit, the plant naturally requires a good amount of



W. GILL,]

Forest Red Gums, Bundaleer Forest.

[PHOTO

moisture in the soil; the drier the soil and the more exposed the situation, the more water it will need.

The Loganberry may be propagated either by root division or by layering. The growing canes may be layered by simply bending the canes down to the ground, fastening them with a forked stick to keep them in position, and covering loosely with a mulch of soil, which should be kept moist. The cane will produce roots freely and readily from each leaf joint under the soil. Each winter the old and straggling canes should be removed so as to allow the new growths to become strong and produce good fruit. In spring or early summer the strong growing shoots should be pinched back so as to strengthen the cane and produce a good quantity of fruiting laterals.

The Loganberry is mentioned in some American horticultural magazines as a honey plant, owing to the fact that the

bees cluster around the flowers in considerable numbers. Still it would not be advisable to plant it for that purpose, as there are many other plants more suitable as 'bee-plants,' which flower simultaneously with the Loganberry.

Having made so marked a success in the production of the Loganberry, horticulturists have utilised this plant for further hybridizing purposes; and as a result two new berries have been placed on the market. These are the Laxtonberry and the Lowberry. The Lowberry is the finest of these two, and is a cross between the Loganberry and the blackberry. It produces remarkably large berries, black in color, and very juicy, the berries being sometimes $1\frac{1}{2}$ inches in length.

Victorian 'Journal of Agriculture'.

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THE FARM.

A Note on the Working of Soils.

J. S. McFardzean, Dairy Supervisor.

Many soils vary largely in their consistency under different degrees of moistness but there is some stage between wet and dry when each may be most easily reduced by mechanical action to that friable condition that is necessary in a good seed bed. When breaking up land at any season, but more especially when the weather is dry, every effort should be made to work the ground at this stage in order that the labour and cost of cultivation may be reduced to a minimum, and a satisfactory yield be ultimately obtained.

It is not to be supposed that anyone would intentionally make this work of cultivation heavier for himself or his team; nevertheless, this is often done through overlooking some simple matter in connexion with the variations of the soil or weather. Even when apparently dry, all soil contains some moisture; but, when in a condition which allows of it being easily turned over by either plough or spade, there is usually an obvious amount present. In breaking up ground that is intended for cropping during the summer months such moisture should be carefully conserved. Want of attention to this point frequently have caused much loss of time, and has even resulted at times in the failure of that season's sowing.

If damp soil on being turned over

lie in an unbroken sod, exposed to the action of either a hot sun or a dry wind much of the moisture it contains will soon evaporate; and it is apt then to become more or less caked and cloddy. In such a condition it will not make into a satisfactory seed bed; but, if broken down by harrowing before it becomes over dry, much of its moisture will be retained, and it will be more easily brought to the desired position for sowing.

No gardener in digging sweet ground would turn it over in sods and leave it to dry in that state. Each spadeful is broken down as it is turned over; and when digging is finished very little more work is required to make a satisfactory seed-bed. On the other hand it is quite a common occurrence for a ploughman to continue turning over acres of soil until he has finished a given area; meanwhile thoughtlessly leaving the damp soil to bake and clod, and the moisture to evaporate. The result is that, without an opportune rainfall, he afterwards experiences much difficulty in bringing that ground into anything like fair sowing condition, even by expending much extra time and labour on it in repeated working. In such cases the weather is blamed for the unsatisfactory result. But, if the farmer had worked his acres on a method similar to that applied by the gardener and broken down the newly turned soil before it became dry, he would have had no cause for complaint. A like result is obtainable with either plough or spade if the soil is worked down at the proper time; that is before the moisture dries from it.

Under dry weather conditions, therefore ground should be broken down as soon as possible after it is turned over and the drier the atmosphere the less time must be lost in harrowing down the freshly ploughed surface. No rule, however, will suit all soils or weather variations. The point to be remembered is, that to allow soil to dry out to any extent before breaking it down by harrowing means increasing the cost of producing the crop by putting up more work for the man and team; and at the

same time the possibility of a satisfactory crop is being materially reduced.

In either the farm or the garden, a small area properly worked will give a more satisfactory result than a larger extent of ground indifferently treated. Careful cultivation insures a more even germination of the seed when sown; each plant is also enabled to make better root growth; and the land has thus a better chance to yield a good return.

Victorian 'Journal of Agriculture'.

The Cost of a Bad Collar.

Some people have an idea that so long as a collar is sufficiently bulky and strong looking it will serve for any horse. When ploughing time comes round, and the hardest work of the year commences, on to raw youngsters and the bloated elders go great collars. Of course, almost any horse after a fair spell from work may get a bit tender about the shoulders during his first few days at ploughing, but it is also not by any means uncommon to see quite a large proportion of the horses on a holding practically incapacitated at the most critical time through lack of care in getting well-fitting collars.

The loss of time, and in ticklish seasons of favourable sowing opportunities, in this respect must be very considerable.

The subject is one that is worth preaching about. There are three ways or so round the difficulty:—

First: Let each horse have it's own collar, and be sure that it fits him as well as possible.

Second: Be sure that you so adjust the hames as to give him the fairest and most effective pull.

Third: Take care of the collar, and keep it as clean as possible of cake sweet.

— 'Agricultural Gazette of N.S.W.'

Too much cleanliness cannot obtain in the dairy, nor in the cowshed. What is amiss there will affect the dairy.

* * * * *

Isolate every cow at calving time and keep her apart from the herd, to avoid the possibility of harmful excitement.

THE ONION EEL-WORM.

Experiments for the Eradication of—With a Short Description of its Life History and Habits.

[By W. Laidlaw, B.Sc., Micro-Biologist, and C. A. Price, Microscopist, in the 'Vic. Journal of Agriculture.']

It is only within recent years that special attention has been directed to the systematic study of the Nematoda or thread worms parasitic on plants, as distinguished from those affecting animals, though various experiments were made many years ago by the Department of Agriculture for the eradication of eel-worms affecting the onion crops in the Drysdale district.

In the year 1890, Dr. N. A. Cobb, in the 'Agricultural Gazette of New South Wales,' called attention to the fact that an eel-worm, known to science as *Tylenchus devastatrix*, was believed to exist in Australia. This was confirmed by an article from the pen of Mr. A. N. Pearson, who at that time was Agricultural Chemist of Victoria.

At the instance of the late Mr. Levien, M.L.A., a prominent onion-grower, Mr. Pearson visited the Drysdale district for the purpose of ascertaining the cause of a disease affecting the onions. He discovered in the diseased onions a minute eel-worm. He says:—

The ground at present is in a deplorable state. It is not surprising that this should be so. In almost all cases where crops are grown year after year on the same land, without rest or change, such a condition of things arises, but besides this continuous onion growing the ground is not cleared of the diseased onions, which are allowed to remain bearing the eggs or spores to the next season.

For many years previous to this date, this land had been continuously cropped with onions, owing to its suitability for their culture. Mr. Pearson arrived at the conclusion that the only remedy for the state of things then existing was an entire change in the system of agriculture, the abolition for a time of the

onion crop from the district and the establishment of suitable rotations. He experimented with a number of chemicals, including chloride of lime, gas lime, dilute solutions of mercuric chloride and dilute arsenical solutions. He also burned straw and brushwood on the surface of the soil, without any or only slightly beneficial effects.

Dr. Cobb applied to Mr. Pearson for specimens of the diseased onions, which were forwarded and on which he contributed a report to the 'Agricultural Gazette' in 1891. After a minute description of the anatomy of the eel-worm (which he recognised to be *Tylenchus devastatrix*), and the various agencies by which it is spread, he suggested the following remedies:—

1. To destroy all affected plants.
2. To remove all weeds that might afford the worms a subsistence.
3. Removal of the first three inches of the surface soil.
4. Deep and thorough ploughing, which turns the soil exactly bottom side up.
5. The promotion of a rapid growth of plants cultivated.
6. Sowing the infested land thickly with rye, and reaping it while young.
7. Injection of carbon bisulphide into the soil, the injections to be shallow and numerous.
8. A good system of drainage.

In the year 1891, various chemicals were tried by Mr. D. McAlpine, Vegetable Pathologist, for the eradication of the onion eel-worm. The following chemicals were used during the experiments carried out at that time:—

1. A mixture of sulphate of potash and sulphate of ammonia.
2. A dressing of lime.
3. Spraying the plants with diluted phenyle.
4. Spraying with dilute corrosive sublimate.
5. Dilute corrosive sublimate applied to the soil in the badly affected parts.
6. Sulphate of iron forked in between the rows of the onions.

These chemicals, it is stated, produced no effect, the disease being as bad on the treated as on the untreated plots. Since then, numerous experiments for the eradication of this pest have been tried by other investigators, principally on their own initiative. Among these, special attention must be made of Mr. R.

J. Fletcher, of North Geelong, whose work extended over a period of four years, and included not only the effect of chemical substances and manures on the affected land, but also a study of the life history of the eel-worm. By this observer over 300 plots were treated, scattered over nine different farms in paddocks known to be diseased, and included within an area of 30 square miles, thus getting a variety of soils, drainage, and other conditions.

The chemicals used were the following: Sulphurous acid, chloride of lime, arsenic and soda, potassium cyanide, corrosive sublimate, spent oxide from gas works, common salt, ground quicklime, freshly slaked lime, saccharated, solution of lime, flowers of sulphur, precipitated sulphur, and naphthalene. Out of this comprehensive list of chemicals, he found that sulphurous acid and ammonia were the only two that gave results worth further consideration. As the sulphurous acid was only tried on two farms, the results obtained were not considered conclusive. Some experiments with the gas were carried out by us in the laboratory, but the soil as rendered so acid that onion seed failed to germinate. No good results were obtained by enriching the soil by manual treatment, or burning bushwood or straw on the surface. Mr. Fletcher summarizes as follows:—

No good is obtained by chemical insecticides, fertilizers, change of seed or burning, and little reliance can be placed on transplanting. Good barley can be grown on diseased land and can be followed by one, sometimes two, good crops of onions; then barley must be sown again. Soil fertility has little to do with the presence of eel-worms.

(To be Continued.)

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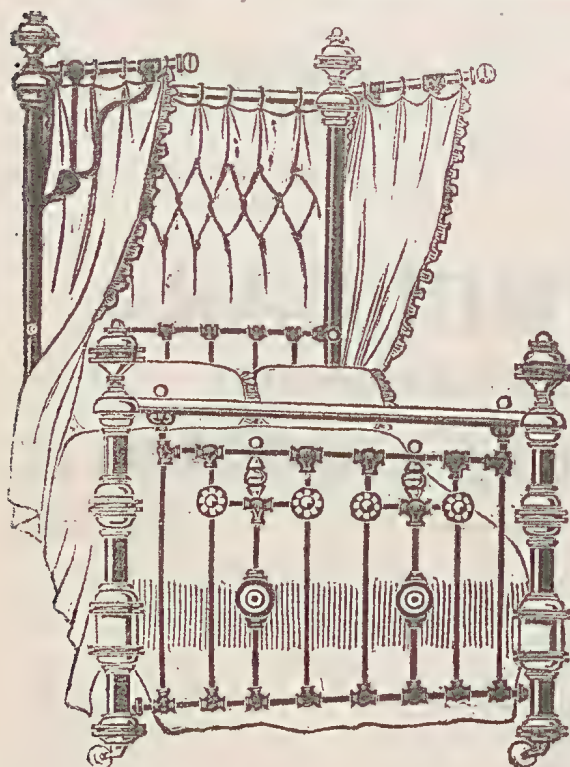
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as if you
shopped
personally.



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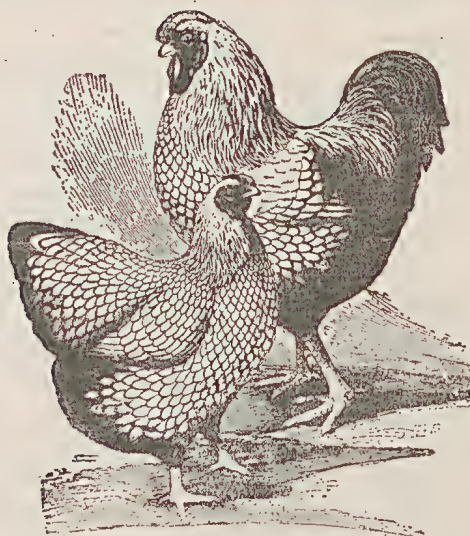


LOUNGES, practically the same design as above strong frames, lapped with care, £1 12s 6d.

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Adelaide's BEST Furnishers.



The Poultry Yard.

Tick Fever in Fowls.

A. A. Brown, M.B., B.S., Inspector of Foods for Export.

A disease that is the cause of considerable mortality in fowls, and consequently of great losses to poultry breeders, prevails over a large extent of Australia. It would be difficult to estimate the losses annually inflicted on the poultry industry in the Commonwealth by the depredations occasioned by the fowl tick (*Argas americanus*) that is the primary factor in the dissemination of the infective agent. The infective agent is a micro-organism which belongs to the protozoa, or lowest division of the animal kingdom. It is harboured in the bodies of *Argasides* or fowl ticks, and the ticks by biting fowls introduce it into their bodies.

Tick fever is a disease of the blood in which hæmolysis, or destruction of the red blood corpuscles, is a characteristic feature, and this hæmolysis is produced by the vital activities of the micro-parasite.

Fowl tick does not mature on the bodies of horses, cattle, sheep, pigs, dogs, ducks, or geese, although ticks may

occasionally perhaps be observed on them. The special micro-organism prevailing in the *Argas americanus* that causes the fever in fowls has not, moreover, ever yet been detected in the blood of any animal or bird in the orders mentioned.

Ticks attack birds belonging to the pigeon and fowl tribes and young ticks attach themselves to their bodies, and there they may remain until they undergo certain transformations incidental to their development.

There is as yet no direct evidence to prove that chickens hatched from the eggs of fowls that had suffered, and yet recovered from tick fever, are hereditarily immune. Young chickens in the infested areas are probably often attacked and inoculated by ticks so that by the time they have reached the adult stage of existence, provided they have survived the inoculations, they have acquired immunity to the specific micro-organisms. Ticks can be kept in receptacles that admit air without food for twelve months without losing their vitality.

The micro-parasite, the *Piroplasma gallinæ*, which is the actual cause of the fever in fowls suffering from tick fever, is a particularly small motile organism belonging to the animal kingdom. The

organisms exist both in the blood cells (intra-corpuscular forms) and in the blood serum (extra-corpuscular forms). The extra-corpuscular forms are far more numerous and larger than the intra-corpuscular forms. In preparations made from the blood of the heart and large vessels only a few organisms are at any time detectible, but in preparations made from the blood of capillaries of internal organs, particularly the kidneys, many of the protozoans may readily be seen. The red blood cells of the fowl are about 1-2500th of an inch in length, and the *piroplasma* is from 1-15th to 1-20th the size of a red corpuscle. The intra-cellular forms may be detected in the cover slip preparations, hence the difficulty experienced in determining the exact causation of the mortality in tick infestation. The extra-cellular forms are larger and more numerous than the intra-cellular forms, and in preparations of blood from fowls freshly killed they are readily enough observable to the trained observer.

The body temperature of affected fowls rises several degrees. The normal temperature of a fowl is 107 degrees, but elevations of the temperature to 110 and even 112 degrees are not uncommon in the course of tick fever infection. The fowls become weak, emaciated, and lose the power of their legs. The red blood corpuscles are broken up and this condition is one of the essential factors in the course of the disorder. Since the organisms belong to the protozoa they are incapable of being cultivated outside the bodies of fowls.

The organisms, besides varying in size vary also in form. Some are spherical, some pear shaped, some oblong, and some possess irregular shapes. They are highly refractive and do not satisfactorily absorb stains. However, they can be stained by special methods and I possess some very good slides. It is some time since I reported the existence of the *Piroplasma gallinæ* in the blood of fowls and its connection with the tick fever disease. Quite recently again, for further investigation, I sent two young fowls to Swan Hill to be placed in a situation where they might become tick infested and so

infected with the specific micro-parasite. The result was positive in both cases and the fowls were returned to me for special examination. The average number of red corpuscles in a healthy fowl is 4,000,000 per cubic millimetre and the average amount of hæmoglobin 68 per cent. In the fowls that contracted tick fever, investigations disclosed that the number of corpuscles had sunk to 2,800,000 per cubic millimetre and the hæmoglobin to 40 per cent.

Some years have elapsed since I indentified the parasite (*Argas americanus*) when it first commenced to make its influence felt in Victoria, and the course of action that has been since followed to check its spread has proved eminently successful in confining it to the areas in which it was first discovered. A great deal of work has been done in the direction of first securing its eradication from the poultry runs of the State, and it is hoped that when Poultry Diseases Bill which has been drafted has been placed upon the statute-book, there will be provided ample power to take such action as will lead to the complete extirpation of the pest from Victoria.

—Victorian 'Journal of Agriculture.'

How Mexicans Test Eggs.

It is a common sight in the plaza in a Mexican town, says an exchange, to behold a stall-woman who is selling two reals' worth of eggs, pick them up one by one, put one end and then the other to her lips, and hand them over to the customer, who does likewise. To the inexperienced onlooker it seems as if they were tasting the extremities of the eggs. As a matter of fact, they never touch the egg with their tongue. The idea is that when an egg is fresh one end is distinctly colder than the other. The end which has the air chamber is the warmer of the two. The human lips are exceedingly sensitive to heat and cold, and even the novice at that form of egg-testing promptly becomes a capable judge. If both ends of the egg reveal the same temperature, that egg may be counted as bad, as it is a fairly good sign that the air chamber is broken and the contents spread equally within the shell.

Poultry Farming on Small Holdings.

[By H. V. Hawkins, Poultry Expert, in 'Victorian Journal of Agriculture.'

(Continued from last issue.)

Breeding and Feeding.

— The Breeding Pen. —

Locality plays a most important part in the success or otherwise of poultry breeding. Badly drained, sour, or very stony land should be avoided; rather select a site having an easterly aspect, sloping so that the early morning sun may sweeten the ground, which is a great factor in warding off disease. All cannot secure sandy soil, but look for loose soil, and whenever possible secure the sandy spot. It dries out quicker, and is much easier to keep clean.

Farmers know little or nothing about the breeding pen, but to my mind this is the key to success. The old idea of keeping a few fowls round the homestead is passing. The farmer should know something about the fowls he has. Before he thinks of incubating he should be careful to watch for the layer of 150 to 200 eggs; hence the necessity of a breeding pen. A fair sized pen, say, 50 by 20 ft., should be set apart for this purpose. First of all run the plough round making a trench of say, 10 to 12 ins. deep. Then place the posts, (8 ft. lengths) about two feet in the ground, 12 ft. apart—good saplings barked will do. Before filling up the trench, run two rows of barbed wire all round. This will be a safe investment, and will effectively keep out foxes or wild dogs.

Breakwind.—After this, run a batten round 3 ft. from the ground, to keep the posts straight, but on no account have any top rail: it only encourages the birds to fly over and is also a source of danger where foxes are troublesome. The latter will never attempt to jump on wire mesh, but if you give them a foothold, trouble will begin. Use 6 ft. palings cut in half, or, if funds permit plain sheet

iron. These should be nailed on to the mid-batten all round the pen, and will provide a splendid breakwind for the stud birds.

Shade and Shelter.—It must not be forgotten that shelter is absolute necessary in a breeding pen. The temperature of a fowl's body being greater than our own, it stands to reason that shade from the sun's rays must be provided. The best and most quickly grown shelter hedge is the tree lucerne. It will grow in almost any part of Australia, and will stand drought well. The tops should be cut every month, the lowest part of the stem, throwing the shade along the ground, where the birds can rest comfortably from the sun and wind.

Construction of Houses.—The next consideration should be housing in the breeding pen. A small portable house is all that is required to hold only such birds as are selected typical layers; or twelve birds will be sufficient in one pen no matter what breed you intend keeping. The house should in all cases face the east so as to get as much sunshine as possible. It is not necessary in this climate to build expensive or warm houses. The north, south, and west sides should be closed in, should be quite free from cracks and draughts, the east side alone being entirely open. The roof should slope eastward, and project two feet over the frontal uprights; this will effectively prevent an easterly rain (a rare occurrence) from driving in on the birds at night-time, and will allow the rain to drop clear of the base of the house. A good plan to safeguard the floor is to run a small piece of spouting round the house, and have the downpipe placed in position to carry the water clear of the pen. For example, a portable building 6 ft. by 4 ft. wide, the back 5 ft., and the front 4 ft. high, makes a serviceable house. Ten sheets (5 x 2) of narrow gauge galvanized iron will suffice, 3 sheets for roof, 3 for back, and 2 for each end. Having no floor, it is easily moved, simple to spray, and is almost insect proof.

Many make the mistake of coddling their fowls. Coming off the perch off a warm house at dawn in June, the birds receive a severe shock, and very often take cold, which may lead to roup, the fowl's worst enemy. An even temperature, a house free from draughts, a dry floor, and good ventilation, are requisite.

(To be Continued.)

About Pigeons.

The Exhibition Homer.

(By J. Noble, in 'The Australian Hen and Fanciers' Friend.)

The Exhibition Homer is practically a new variety, making rapid headway and is one of the most popular varieties competing at the present time in the show pens throughout Great Britain.

I note a number of well known English fanciers have paid special attention to improving this new variety, and so successful have they been, that the Exhibition Homer of to-day has become established and is one of the most favoured breed of fancy pigeons, and to quote an English writer in that journal 'Pigeons' recently, thus: 'The old adherents, of that one time proportionate bird, the Show Homer, have come over almost in a body and taken up this new sub-variety (the Exhibition Homer) with the greatest enthusiasm.' I ask who can deny it is a bird of great beauty, the style, vigorous and muscular, hard, tight and short feathered, altogether the most attractive pigeon. Little wonder it has fascinated the fanciers of Great Britain.

Competition of the Classics is heavy. At the recent great International Show in London twelve classes were provided for the Exhibition Homer, and these averaged over 12 birds per class, 'proof plenty,' as to their grip of the English fanciers. Good specimens are in great demand, and at the present time will command almost any figure from £10 upwards.

With the object of still greater progress, the National Exhibition Homer Society, has been formed, and is going strong.

The scale controlling its show properties are:—Head 15, beak 4, wattle 2, eye and centre 12, neck 5, chest 5, back 5, body 5, wings, flights and tail 15, carriage 2, size 5, color 4, condition 12, legs 2 keel 4—total 100. The following is an extract from an article by S. Peat, Hon. Sec. National Exhibition Homer Society, and appeared in 'Pigeons':—

The beak should be stout having close-fitting upper and lower mandibles, or halves of almost equal thickness, dead straight in setting, and of a hard dark, colour. Pies may have parti-coloured beaks. In the beak setting lies much of the difference between the Exhibition Homer and its predecessor, the Show Homer. This straight setting must be maintained, at all costs, or one great object for which this variety was introduced will be destroyed.

The wattle is V shaped, small and smooth; in fact, it should be free from any coarseness whatever. A fish white eye is desirable though a pearl one is allowed, but of either colour it must be bold, alert, and intelligent. Cere is an important point, as no matter how bright white, and bold the eye, unless it is surrounded by a fine, hard, small, sweetly laced, dark-coloured cere, a bird looks coarse in head. Pies may have parti-coloured ceres. The neck we require of medium length and thickness. A broad and full chest is needed to produce a wedge shape. The back must be short—the shorter the better—flat; broad across the shoulders, tapering to rump and tail, to form a triangle or wedge. The body short, straight in breast bone, deep keeled wide in front, and wedge-shaped in finish behind.

I find in our Standard we say 'Wings fairly short' but we want them short to conform to a short back. Never have I seen a bird with the erect and bold carriage we require unless it had short back and flights.

A close-fitting tail having the appearance of one feather carried clear of the ground, is a good description of what we want; but I will add the word small. The legs must be of medium length and thickness. These should be set back as far as possible to give that upright, bold carriage so necessary to the bird's finish. Colour must be sound, bright and hard. The Chequers to have a bold and distinct chequering—not of a dull, washed out appearance.

Given a pigeon of medium size possessing the points I have enumerated, I think we should all be delighted, and feast our eyes long upon such a beautiful specimen of the Columbarian tribe.

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The 'Welsh' Skirt and Pattern-Marking Appliance at work.

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By using this appliance you are enabled to Finish Three Heavily Trimmed Skirts while making One in the Ordinary Way. With this invention it is impossible to cut a wrong fitting skirt, as everything is cut out mechanically.

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J. W. ALFORD, No. 6, ARCADE, ADELAIDE

For the Ladies.

The Question.

"Fred, look at my new costume;
 "Oh, don't you think it's nice?"
 But her husband only answers:
 "What's the price?"
 "And see my diamond necklace!
 Just like the one I lost."
 But her husband only answers:
 "What's it cost?"
 "And my furs, just loves of ermine!
 They'll make the duchess weep!"
 But her husband only answers:
 "Are they cheap?"
 "I will look charming, Freddy—
 A perfect dream I will!"
 But her husband only answers:
 "Where's the bill?"

What a "Left-Handed Marriage" Means.

The "left-handed marriage" is a German custom. It derives its name from a notification in the marriage ritual. A man marrying a woman of inferior rank gave her at the movement of the religious celebration of the wedding the left instead of the right hand. The marriage was valid, and children born of such unions were considered legitimate. The marriage was declared, and the bride had the rank of a wife. In this the left-handed marriage differs from the morganatic marriage. The latter is never declared, although the children are recognized. It binds before God and one's own conscience. The left-hand children did not, however, inherit entirely, like those of regular marriages. The property they received from their father was considered as a largess, and if there were children of a regular marriage they had the advantage over them.

When making gravy remove the pan from the fire while the thickening is being stirred in, and when smooth return to the fire to cook. The method prevents lumps forming.

"Sam Slick" on the Kiss.

It tants a thing ever to be forgot. No language can express it, no letters will give the sound. Then what in nature is equal to the flavour of it? What an aroma it has! How spiritual it is! It ain't gross, for you can't feed on it; it don't cloy, for the palate ain't required to test its taste. It is neither visible, nor tangible, nor portable, nor transferable. It is not a substance, nor a liquid, nor a vapour. It has neither color nor form.

Imagination can't conceive it. It can't be imitated or forged. It is confined to no clime or country, but is ubiquitous, it is disembodied when completed, but is instantly reproduced, and so is immortal.

It is as old as the creation, and yet is as young and fresh as ever; it pre-existed still exists, and always will exist. It pervades all nature. The breeze as it passes the rose, and the pennant vine stoops down and hides with its tendrils its blushes as it kisses the limpid stream that waits in an eddy to meet it, and raises its tiny waves, like anxious lips, to receive it.

Depend upon it, Eve learned it in Paradise and was taught its beauties, virtues, and varieties by an angel, there is something so transcendent in it. How it is adapted to all circumstances!

There is the kiss of welcome and of parting, the long lingering, loving present one; the stolen or the mutual one; the kiss of love, of joy, and of sorrow; the seal of promise, and the receipt of fulfilment.

It is strange therefore that a woman is invincible whose armoury consists of kisses, smiles, sighs, and tears. Is it any wonder that poor old Adam was first tempted, and then ruined?

It is very easy for preachers to get up with long faces and tell us he ought to have been more of a man. My opinion is, if he had been less of a man it would have been better for him.

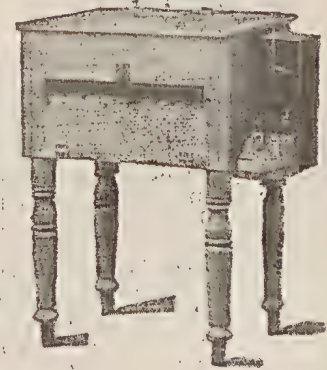
But I shall always maintain to my dying day that kissing is a sublime mystery.

Washing Silk Handkerchiefs.

Silk handkerchiefs are often ruined by careless washing, such as they are likely to get if put into a general wash. They should be washed separately in lukewarm water, in which a teaspoonful of liquid ammonia has been poured, then rinsed in clear, cold water without bluing. Wring out and fold and roll tightly, but do not let them dry before ironing, or they will wrinkle. Colored silk handkerchiefs should be washed with fine white soap, never with cheap laundry soap as the soda fades the colors and eats holes in the silk.

Polish for Bright Stoves.

Mix one tablespoonful of turpentine with one tablespoonful of sweet oil, and sufficient emery-powder to make the mixture of the thickness of cream; put it with a soft flannel or rubber on the article to be cleaned, and polish off quickly with another soft duster; then polish with a little dry emery-powder and a clean leather. If there are rust spots on the steel, rub with emery-powder, then take a smooth pebble and rub backwards and forwards until the rust disappears.



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HOUSEHOLD HINTS

— A Nice Boiled Salad Dressing. —

Mix well a teaspoonful each of salt, mustard, and sugar, and $\frac{1}{2}$ teaspoonful of white pepper, or, instead, a pinch of red; add the beaten yolks of 2 eggs, and stir till smooth. Melt 2 tablespoonfuls of butter in $\frac{1}{2}$ cup of hot vinegar, and slowly add this; then gradually add a cup of scalded milk, and cook in a double boiler till it is smooth and thick, but do not let it boil or it will curdle. Let it cool, and then beat in the whites of the eggs; cover, and keep for use; when needed, thin with a little sweet cream.

* * * * *

— Kidney Toss. —

Cut some mutton kidneys into small square pieces, removing the skin and core, and keep it covered, and about ten minutes before serving toss it sharply into a frying pan with one or two ounces of butter. Season with salt and pepper.

When the meat is firm skim out the kidney into a small saucepan. To the gravy in the pan add a small teaspoonful of flavouring, the same of tomato sauce, a few drops of lemon juice, and a teaspoonful of Worcester sauce. Toss all in the pan for a few minutes to smooth and cook the flour, and then add half a cup of stock and half a wineglass of any red wine (not claret). Heat and pour over the kidney, and again heat, but do not let it boil, or it will be hard. Dish the kidney on rounds of fried bread, and pour over each some of the sauce.

* * * * *

— Sausage Croquettes. —

One lb. cooked sausage, $1\frac{1}{2}$ cupfuls of mashed potatoes, 3 hard boiled eggs, $1\frac{1}{2}$ tablespoonfuls of chopped parsley, add $\frac{1}{4}$ of a teaspoonful of sweet marjoram or thyme. Chop the egg and sausage quite fine, then mix the ingredients thoroughly adding $\frac{1}{2}$ teaspoonful of salt and $\frac{1}{2}$ of a teaspoonful of pepper. Shape into croquettes, coat with egg and bread crumbs, and fry in deep fat.

— Grilled Sheep's Tongues. —

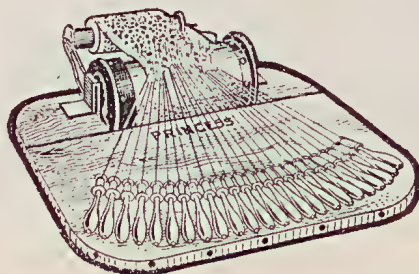
Take the required number of tongues, and boil them in water until they are tender, or when the skin will peel off easily when a test is made. Take them up, trim, and skin. Split them down the middle, dip them in dissolved butter, and then in fine browned bread crumbs, and grill on a medium, clear fire until they are nicely browned.

* * * * *

— Lobster Outlets. —

Ingredients.—Half lb. lobster, 1 oz. flour, $\frac{1}{4}$ of a pint of milk, the juice of $\frac{1}{2}$ a lemon, salt, pepper, egg, bread crumbs and fat. Method.—Chop the lobster up finely, melt the butter in a small pan, add flour, stir till smooth, then add fish and cook for a little while, then gradually add milk and boil up. Put in lemon juice and seasoning. Spread smoothly on a plate, and when cold cut into equal parts, form into outlets, egg and bread crumb them, and fry in plenty of fat three or four minutes. Other fish than lobsters may be used with equal success.

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April, 1910

THE AUSTRALIAN GARDENER.

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The Young Folks.

The Moon Elf.

When the moon isn't bright
There's a quaint little sprite,
A remarkably odd little fairy—
Who mounts to the sky,
Though it's ever so high
(Now, no doubt you are thinking, 'How
dare he?')

His umbrella balloon
Takes him up to the moon;
Then he pulls out his small 'pocket-
henky,'
And he rubs every trace
Of a cloud from the face
Of the moon, who rewards him with
'Thanky!'

Military Strategy.

[Explained with Matches by Mr. X, in
'The Royal Magazine.]

Not long ago Mr. X dined with a
gallant officer at his regimental mess, and
the conversation veered round to army
experiences.

'On the Indian frontier,' said the
colonel, 'I once ran up against nine
pukka hillmen, and things looked very
black, for we were only nine all told, and
they held a strong position. However, I
and my fellows lay down in this formation
—the colonel illustrated with matches—

T E N

and the enemy, seeing themselves out
numbered, fled at once.'

There was loud applause, and when it
had subsided, the adjutant took up the
tale.

'In South Africa,' he said reminiscently
'I was sent out to reconnoitre
with eight men. Working round a
kopje we came upon twenty Boers. I
made up my mind to collar them, but,
only nine against twenty, how was it to
be done?' He reached for the match-
box.

'I thought the matter over, and we lay
down thus:

X X X V I

'It was rather squashy for the first
six men, but the effect was great. The
Boers saw that we were almost two to
one, and threw up their hands. We
bagged the lot.'

The adjutant's health was drunk with
enthusiasm, and the colonel looked crest-
fallen. Mr. X. pitied him, thus
outdone before his own mess, and said
deferentially:

'Many years ago, when a young man, I
held a commission in the volunteers. I
was only a subaltern,' continued Mr. X.
humbly. 'One day I was ordered to hold
a position with eight men. It was during
a sham fight, and a very distinguished
general commanded the opposing forces.
'It chanced that he and his staff, escorted
by a troop of lancers, rode up to where I
and my eight lay in ambush. They
totalled about thirty-six men, and I
determined to catch them. But how?
Then a bright idea came to me. Thank
you!' said Mr. X, as some one passed
the matches.

'I did not trouble even to make use of
cover. I and my men marched out
thus:

I I I I I I I I

'The general saw that we were three
and a half-dozen. He and his were but
thirty-six all told. He capitulated.'

No sound greeted Mr. X's little
reminiscence, but the colonel, with tears
in his eyes, rose, and wrung him
affectionately by the hand.

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Gardener" Office,**
20 Waymouth Street.

Why a Red Sky at Night Fortells Fine Weather.

Because when the red rays of evening
light are very freely transmitted through
the atmosphere the amount of moisture
floating therein does not approach the
rain point. The beams of the setting sun
are refracted by the vapour in the air,
which displays and passes the red rays of
light with greater freedom and intensity
than the rays of other hue. Hence the
old weather saw: 'If the sun in red shall
set, next day shall be free from wet,' with
its many variants; indeed, this bit of
folk-lore dates back to Biblical days, for
in St. Matthew's Gospel may be found
the following expression thereof: 'When
it is evening, ye say, 'It will be fair
weather, for the sky is red.'

What the Saying, "Robbing Peter to Pay Paul," Arose From.

The common expression, 'Robbing
Peter to pay Paul,' found its origin in
London in 1550, when an appropriation
was made from St. Peter's Cathedral (now
generally known as Westminster Abbey)
to make up a deficiency in the accounts
of St. Paul's, the other famous metro-
politan cathedral. The action roused a
good deal of adverse criticism on the part
of the people, who coined the phrase for
the occasion.

Conundrums.

A certain farmer owned a box
containing fifty ears of corn. In one
corner of the box there was a small hole.
A mouse finding this went in, and, coming
out, brought out three ears; this he did
every day until the box was emptied.
How long did it take the mouse to empty
the box?

Fifty days, for each time of coming out
he brought one ear of corn and two ears
of his own.

Why does a ghost always appear to be
hungry?

Because it is always a goblin.

Why is a studious monarch like a lean
man?

Because he is always a-thin-king.

WIT AND HUMOR.

— A Tailor's Lament. —

'Man,' said the tailor, 'is, we read, made of dust, but I cannot see how that is so. Dust always settles. Man rarely does.'

— Of Course Not. —

A young lady went into a well known establishment and said to the shop-walker; "Do you keep stationery?"

"No, miss," replied the shop-walker; "If I did I should loose my job."

— Unanswerable —

"Yes," she said, in answer to something he had said, "the old songs are very beautiful."

"Beautiful!" he exclaimed, enthusiastically; "beautiful hardly describes them. They are—they are—well, compared with them, the songs of to-day are trash—the veriest trash."

"I agree with you, yet the old songs sometimes contain sentiments that one cannot wholly approve."

"I think you are mistaken"

"I will give you an illustration. There is John Howard Payne's 'Home, Sweet Home,' for instance. You surely do not agree with all the sentiments it contains?"

"Why not?" he asked warmly. "Why not?"

"Because," she said, glancing at the clock, which was marking the hour of eleven, "because there is a line in that song which says, 'There's no place like home.' You do not believe that, do you?"

It was unanswerable. He coughed a hollow cough, arose, and went silently out into the night.

— A Long Play. —

The first act was over, and the curtain had fallen amidst thunderous applause.

Farmer Hayseed, who, at the urgent request of his wife, had journeyed all the way to "Lunnon" to see what a theatre was like got up to leave the building.

"Where are you going?" asked Mrs. H.

"Home," replied the farmer.

"Home," exclaimed his wife. "Aren't you going to see the finish of this lovely play?"

"No," said Mr. H. "It says on the programme that six months will elapse between the first and second acts. Now, if they think I'm going to sit here for half a year waiting for the second act, and let my farm go to rack and ruin, they are

very much mistaken. No more theatres for me!"

So poor Mrs. H. lost her evening's enjoyment.

— The Motive. —

His Worship: "You say you are not a vagrant?"

Prisoner: "No, your Worship."

His Worship: "Did any motive bring you to this town?"

Prisoner: "Yes, your Worship."

His Worship: "What?"

Prisoner: "Locomotive."

His Worship: "Ten days."

— Unnecessary. —

The young man, leading a dog by the string, lounged up to the ticket office of a railway station and inquired:

"Must I—aw—take a ticket for a puppy?"

"No; you can travel as an ordinary passenger," was the reply.

— Expert Information. —

Johnnie (to new visitor) "So you are my grandma, are you?"

Grandma—"Yes, Johnnie. I'm your grandma on your father's side."

Johnnie—"Well, you're on the wrong side, you'll find that out."

— Caught. —

Tillie—"How many feet are there in a yard, dear?"

May—"It depends whose yard it is, and how many people are in it."

Tillie—"Oh, capital, capital! Quite a wit, aren't you, sister. And how many Christmases are there between nineteen-o-eight and nineteen-o-ten?"

May—"Two, Tillie."

Tillie—"No, darling! If you will take 1908 from 19010 (nineteen-o-ten) you'll find there are 17102 Christmases between them."

— Tantalising. —

James (to his sister, who is engaged)—"Ethel, I have a little quip I would like to put before you."

Ethel—"Something silly, I suppose!"

James—"Can you make two words out of the word enough which is not enough?"

Ethel—"I knew it was something silly. Well, what's the answer?"

James (chuckling)—"One hug!"

Ethel—"Er-um-uh? Oh, I see. How very silly."

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THE AUSTRALIAN GARDENER.

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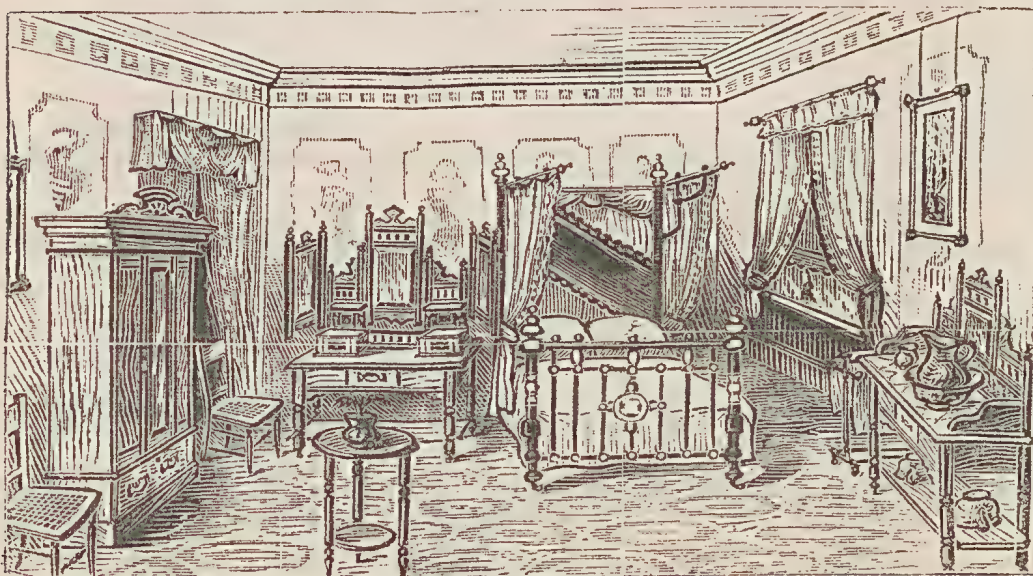
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- 2 Arm Chairs to match
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- 1 Occasional Table
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- 1 Picture
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- 1 Pair Curtains
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May Number of

1910

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry).

IT CONTAINS—

Illustrations—

A View of the Ballarat Gardens,
Victoria.
Merveille de Lyon Rose
Adelaide University, North Terrace
Public Library, North Terrace
Wagon loaded with Piles cut from
Tasmanian Blue Gum, grown in
22 years in Bundaleer Forest
Plantations.

ANSWERS TO CORRESPONDENTS**EDITORIAL.****The Flower Garden—**

Notes for the Month
The Rose and its Uses
Ant and Aphis

The Vegetable Garden—

Operations for the Month
Insect Friends and Foes
Double Digging
Salsify and Scorzonera

News and Notes

The Strawberry

The Orchard—

Notes for the Month
Spraying
Interesting Notes

The Farm—

Harvesting Lucerne for Seed
Work on Rainy Days
Life of Lucerne
Cultivation of the Potato
The Onion-Eel-Worm

The Poultry Yard—

The £ s. d. of Fowls
How to Raise Ducks
Egg Eating
Poultry Farming on Small Holdings
Poultry Brevities

For the Home—

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Questions and Answers.

QUERIES.—Readers are invited to send us queries on any matters on which they want information. No charge is made for the insertion of questions, but the following conditions should be borne in mind. 1. One question only should be written on one sheet of paper. 2. One side only of the paper should be written upon. 3. Querists must forward their names and addresses (not necessary for publication).

ANSWERS TO QUERIES.—The queries sent us will be answered by men who know the subjects, but at the same time we shall be glad to receive answers to any published from readers who can give the information asked for. Our aim is to get our readers to help one another, and no one is better able to help a small gardener than another owner of a small garden who has gained experience in dealing with the many difficulties that have to be faced.

— Leaf-Mould. —

A.M., Mitcham.— Leaf-mould is certainly an aid in gardening, and what you have read is right enough. When it is used in pots, however, gardeners sometimes adopt the plan of putting it on

top of a furnace or in some similar position, to destroy any slugs or other insects there may be about it, but the term 'baking' hardly seems to express it properly. Perhaps there is a more than usually plentiful supply of insects in your soil.

* * * * *

— Making Use of Bones. —

A.Y., Kilkenny.—Burying the bones in large pieces in the kitchen garden would have very little effect indeed, for decay would progress very slowly, and the benefit to be derived from the application would be inappreciable. The best thing you can do is to bury the bones in a heap of manure; the fermentation will soften them, and after a couple of months or so they can be crushed with comparative ease. There are other and more rapid methods of dealing with bones, but where there is only a small quantity this is the most convenient and the least expensive.

* * * * *

— Garden Pests. —

G.B., Prospect.—Which is which? You do not make out any case against the earthworm by saying that the crops are spoiled by 'worms, snails, and caterpillars,' unless you can fix upon the worms alone as having done some of the damage—which is doubtful. But there is no doubt that in your case it is necessary to do something to destroy the snails, and if the worms are destroyed at the same time it cannot be helped. We are surprised that the gas lime did not prove effectual, and one of two things must be the case—either the dressing was insufficient or you have been guilty of neglect in allowing the pests to increase at such a rate since the application. Remember that the rate of increase in insect life is enormous, and the one fly or caterpillar which you did not kill last week may be represented in the near future by thousands—in some cases it would not be wrong to say millions. You must attack the pest steadily. Pick off all the caterpillars and snails you can find at all times, burn all rubbish, and apply to individual crops the special

remedies which are suitable. If you make use of gas lime again this winter, and let it lie on the surface, you will have an opportunity of making a fair start, and we hope you will be more successful. But remember the 'stitch in time.'

* * * * *

— Spiræa. —

'Subscriber,' Port Wakefield.—You do not say what Spiræa it is you want to grow, but assuming that your plant is the common Spiræa japonica—which is most probable—there is no reason why you should not succeed in growing it in your window. An essential in the culture of this plant is that it should have an abundant supply of water when in growth. Provided that the drainage is free, you can hardly give it too much and in warm weather the pot may even be set in a saucer containing water—a course which would be injurious in the case of most plants. If you have a garden attached to your cottage, plant out the Spiræa for the summer, and take it up and re-pot either in the autumn if you want early bloom, or at the beginning of the year if—as would be best in your case—you are content with bloom some time during the spring. Do not make the mistake of giving a lot of water until growth commences; when it is active a little liquid manure will be useful.

* * * * *

— Management of Rough Land. —

'Amateur,' Hyde Park.—As the ground has never been dug up before, the best course will be to trench it up 18 inches to 20 inches deep, burying the weeds at the bottom. Give it a dressing of lime to kill the insects, and, if very poor, manure it just before cropping, in spring, forking in the manure. The first season we should recommend the greater part to be cropped with Potatoes for the purpose of cleaning and freeing the ground from weeds, etc. Afterwards, with good cultivation and liberal treatment in the way of manure, you may grow anything; and, if you wish to make a profit, grow those things which are most in demand in the neighbourhood. A good bed of Rhubarb often pays well.

Early Lettuces and Radishes, Cress, etc., are generally in demand in spring. Grow also early and late Cauliflowers, Strawberries—but everyone has to make his own position, and you will soon discover what is most in demand

† † †

— A pretty Creeper. —

'Fascinated,' Gloncelg.—The name of your lovely 'moonlight creeper' is *Ipomea grandiflora alba*. We are glad to know that it does so well near the sea beach. It is a charming creeper.

† † †

— Cinerarias. —

C.G., Halifax street. — Keep your Cinerarias in the pots till the plants cover them and then transplant, spacing out about a foot.

EDITORIAL.

With some producers the fall of leaf is a time of relaxation. During autumn men as well as trees and plants should have a rest after the labors of producing and sustaining their season's crop of leaves, flowers, and fruit. While the trees and plant demand it, and no one can deny them their rest, man is a free agent, and can do as he likes. At least some men think they can, but in point of fact no man can do as he likes, unless it happens that what he likes is what is right. Ruskin puts this very finely with his old trueism, which reads that a man is what he likes. Or to put it in his own words, "tell me what you like, and I'll tell you what you are." Well, now, if a man likes to be resting idly at the present fall of the year, while trees and plants are resting, he may be satisfied with himself, but his ground is crying out with the burden of weeds that are growing and the dead leaves that are accumulating and harboring all kinds of pests.

Leaf mould is good for trees, and so is the humus of green weeds. But they will not plough or dig themselves in, so the farmer, or gardener, or orchardist has to keep going. Not only in putting the property in trim, for there are lots of people in cities who are asking for vegetables and fruits, Somebody has to supply them, and who can do it but the producer. So we see that he has no idle time to rest, always going always plenty to do. He is the happy man who so regulates his work that it is a pleasure to him. The most miserable and dissatisfied man in the world is he who has nothing to do. Work seems to be a wise provision of nature to keep a man bright and happy. No truer saying is there in the whole scope of literature than that "Satan finds some mischief still for idle hands to do." It is only an old nursery rhyme, but it would be a good thing for the world if the idle population of the world could have been kept in the nursery and never let out of it. They are not fit for any other position in life—simply overgrown babies, with no one to look after them to see that they do not get into mischief. There is a lot of work to be done in the autumn, then, in cleaning up and planting for the present needs and future supplies.

The producer is never, or cannot afford to be, an idle man, nor does he seem to need the rest that comes to his trees and plants. In point of fact, if he were to work night and day, as the trees do while they are working, his rest would be so long that he might say a happy farewell and go to a better world than this.

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A View of the Ballarat Gardens, Victoria.

Flower Garden.

Notes for the Month.

The cottager should be as busy as a bee with his little front garden and also the back area. Digging, trenching, remodeling, hoeing, raking, and manuring makes plenty of work this month. The dying glories of the summer blooms have now to be removed and the litter stowed away in the manure pit to make leaf mould, and if every barrow load of stuff is covered with scrapings the stuff to be taken out later on will do well for top dressing. The exhausted stuff from annuals and biennials and deciduous trees is thus returned again to enrich the exhausted soil. The manure pit is a great institution in

any garden. Put down in some odd corner it is made the repository for all refuse, and having a place to put stuff away conveniently is always an inducement to keep the garden clean. Dahlias and Cannas have exhausted their beauties and may be cut down a little later on to facilitate removal after which the ground should be turned up and left for a while.

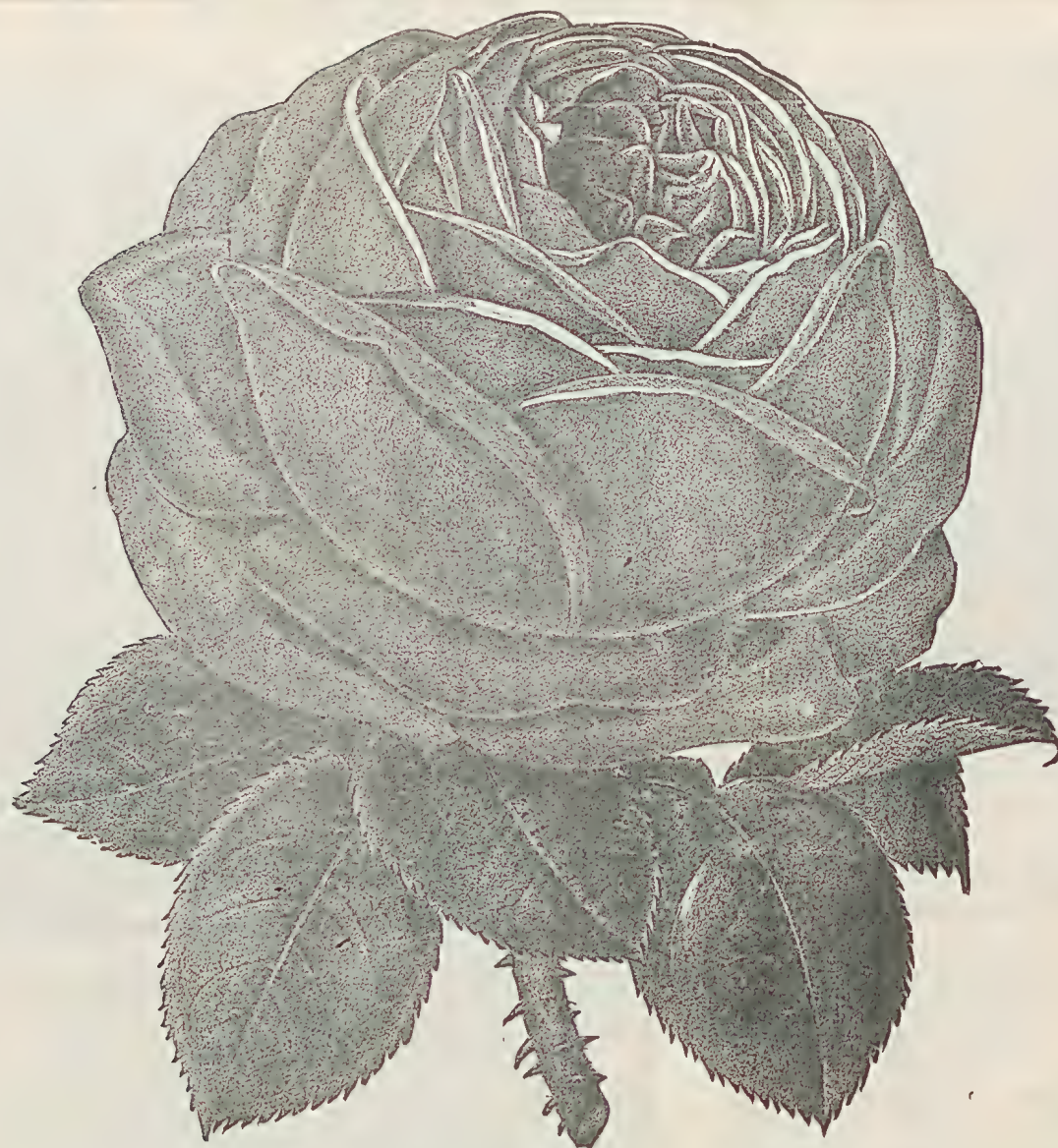
— Planting Out. —

Deciduous trees and shrubs may be planted out this month, and care should be exercised in setting them in places where they may be allowed free growth without hiding those of humbler aspirations, but of brighter bloom. It is a common experience for gardeners to look at some favorite shrub and every time wish it had been put in somewhere else. A little forethought will prevent this provocation. The variegated evergreens

give a good tint of colouring to the garden during the dull winter months such as the golden leaved Oleanders, Abutilons, Eleagnus, Coprosma, Euonymus, Pittosporum, Deeringia, and for deciduous trees the Maples (England and Japanese), Pyrus, Berberis, Prunus pissardi, and the Rhuses. The Maples, however, will only do in the higher altitudes.

— Bulbs. —

We should soon see the bulbs putting up their heads, and all the Narcissus tribe will be creating the annual excitement amongst bulb lovers. Anemones, Ranunculi, Iris, Lilliums, Gladioli, Ixias, Snowflakes, Lachenallias, Watsonias, Tulips, Babianas, Amaryllids all gather to make a list quite equal to the summer annuals. Although they will be now putting up the first leaves after an early planting, the bulbs may still be put in for later flowering. Perennial Phlox may be divided. We do not think we have seen Phlox to better advantage than this season. The Adelaide Botanical Gardens show was, and is now, simply lovely in Phlox.



“Merveille de Lyon” Rose.

THE ROSE AND ITS USES.

Not only for its color or odor has the most favorite of our flowers-endured the test of time. There are in the Rose medical properties, astringent and tonic in character. The Pharmacopœia indicates three kinds as usual - the Rose canina, or common Dog Rose; the R. Gallica, or French red Rose; and the R. centifolia, or Cabbage Rose. Of the Dog Rose the valuable part is the fruit from which the hairy

achœnia is removed and the fleshy calyx beaten to a pulpy consistency and mixed with sugar. Thus is produced a conserve, containing malic and citric acids, and said to be slightly refrigerent and aperient. The fresh seeds of this Rose are in some parts made into an infusion, and the mild astringent drink is used by those who in swampy districts suffer from malaria.

At one time the district about Mitcham in Surrey, supplied large quantities of petals of the R. Gallica and the R. Damascena for the London herb market, these

being purchased by herbalists for the concoction for their drugs. The process of the preparation of the flowers is curious. Before they expand the buds are plucked and the calyx and base of the petals removed. The flower is then dried as quickly as possible in order to preserve its astringency, fine aroma, and color. It is calculated that about 2,000 buds yield 100 lb. of petals, and that these when dry weigh 10 lb. The taste of the herb is bitter.

Another curious use is made of the same buds. It is found that combined with

salts of iron, and beaten up with cloves and other spices, a thick paste of blackish colour is produced. This paste on exposure to the air, becomes exceedingly hard, and may be polished and turned in a lathe; from it are formed beads for rosaries.

From the petals of the *R. Damascens* and *R. semperflorens* a laxative medicine can be produced, though it is seldom employed. Curiously although the confection compounded from the Dog Rose speedily becomes mouldy, that made from these Roses never does so. In mixing the medicine an iron mortar cannot be used on account of the peculiar action of the Rose juice when in contact with metal. Conserve of the Gallic Rose is used as a vehicle for other medicines, and as a basis for blue pill.

To produce an infusion of Roses, boiling distilled water is poured over the petals, and dilute sulphuric acid is added. After macerating for some hours the liquid is strained and sweetened. No vessel glazed with lead can be used in this process, as the Rose juice acts thereon as it does on iron. The liquid is astringent and slightly tonic, and at one time was largely used to check excessive sweats, as well as for a throat gargle. In the latter case it is mingled with honey, and is called *Mel Rosarum*. The syrup used to sweeten and color medicines is manufactured in a similar way.

As a deodorizer the Rose serves long after its own death. The petals of *Rosa centifolia*, having a very strong perfume, were at one time largely collected and saved after having been dried in the open air, care being taken not to break the several leaves; for in this case (contrary to the *R. Gallica*) desiccation impairs the fragrance. Salt is added, with cloves and a little pepper, and the compound is placed in pots, from which ascends a perpetual though very mild scent.

Whereas in the south of France there are extensive distilleries where the scent known as rosewater is manufactured (as well as at Mitcham, Surrey), Oriental countries produce the far more subtle and costly scents known as *athar*, *ather*, *attar utter*, or *otto* of roses, one of the rarest and most valuable perfumes. Much mystery at one time surrounded the

production of this famous drug. A certain Donald Monro asserted that it was produced by merely soaking the Rose in water. But Trommsdorf, after many experiments, failed to extract the attar thus. Others maintained that it was produced by distillation. Anglo-Indians, in the earlier days of our dominion in India, certainly discovered something about its production. Thus Bishop Reginald Heber of Calcutta in 1823 (his bishopric including Australasia!), states that the Hindoos in his day used 20,000 lb. weight of Roses to extract attar equalling 1 rupee in weight, this selling for 100 rupees. Such a statement would scarcely be credible had we not the good bishop's word for it. But he may have been mistaken, or was imposed upon.

A Mr Jackson states that 'from 1 lac of Roses it is generally calculated that 180 grains . . . of attar can be produced.' Others have calculated the yield at something under 3 drachms of attar from 100 lb. of Rose leaves, and this when the season is good and the manufacture carefully performed. These authorities on the production of the perfume state that 4,365 lb. of Roses, after repeated distillation yield 8 oz of this subtle essence. In India the *R. Damascena* is largely cultivated for the production of this scent. The oil or attar is skimmed off after a method adopted in Turkey.

Kezanlyk in Roumelia is the great European centre of Rose culture for the manufacture of this wonderful perfume. The flowers grow in a highly fertile plain, which is well watered by the River Tunja.

A substance known as English attar has been extracted from Roses grown in this country. Its scent is very faint compared with that which is made abroad. The extraordinarily high price at which the foreign perfume is sold presents a great temptation to dishonest traders. It is commonly reported in India that the attar is adulterated by the mixing with the Rose leaves certain seeds called *Guezely*, as well as with those of a variety of *Digitalis* known as the *Sisama* plant. These seeds which contain an essential oil, are lightly pressed for a period of ten days along with the Rose petals, thus absorbing their scent; the process is repeated eight or ten times with fresh Rose leaves, after

which the seeds are pressed hard to extract the oil. By this time it has acquired a smell which entitles it to be sold for the attar which it is not. The Chinamen have a similar dodge.

The genuine attar of Roses, below the temperature of 80 degrees F., is of crystalline nature and solid. When very pure it is without color; when the temperature is raised to 90 degrees its specific gravity is 0.832. The chemical structure of the perfume has been much discussed, but it seems now to be generally agreed that it consists of two volatile substances, of which the one is solid, the other liquid, in the proportion of 1 part of the solid to 2 parts the liquid. The first is a *stearopten*, the last an *eleopten*. The chemist Gobel states that the entire 'oil' consists of carbon 69.66, hydrogen 16.05, and oxygen 14.28; but Saussure contends that it contains nitrogen. The exceedingly variable nature of the substance which is sold as attar accounts for these diversities of opinion, for it is so costly that its adulteration is universal. Curiously enough, its admixture with other essential oils such as those extracted from Indian grass, *Andropogon*, and *Arcorus calamus*, or from sandalwood, or from *Rhodium* (*Convolvulus scoparius*), renders its adulteration very difficult of detection.

The great value of this perfume causes it to be carefully conveyed over inland routes by Asiatic merchants to Smyrna in Asia Minor and to Constantinople. The Sultan of Turkey imposes a duty on its importation.

Ant and Aphis.

The green fly which bothers the growers of roses and other flowers so badly, and of which the lady-bird is such an enemy, is sometimes called the 'ant cow.' The interesting relations between the ant and the aphis are well known, and the question arises, to what extent, if any, do the intentions of the former affect the prosperity of the latter? It is possible that the ant, by its frequent presence for the purpose of 'milking' the aphis, may serve to keep off some of the natural enemies of the latter. This, of course, would tend to promote the increase of the 'herd',



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This fine Rose is, as a rule, short-lived, but one occasionally meets with an exception. The first plant I ever saw of this with good blooms on it (writes a correspondent in an exchange) was upwards of forty years ago, and the plant still flowers well every season. This plant is grown by Mr. Adams, a jeweller in Sherborne. When quite a youth, and serving in a large garden near, my chief took me over to see it in bloom. In a conversation with its owner he told me it had bloomed abundantly every year, and, one year, when it was at its very best, he sold £8 worth of blooms from it, and this was not an exceptional crop. It is planted out in a lean-to-house. At first this house had no heat, but now for some years it has been slightly heated. It is worked on the Brier, and where the union is made the scion is three times the size of the stock. It is worthy to note how some amateurs succeed when they have a love for gardening.

Divide and replant at once violets, primroses, perennial phlox, penstemons, agapanthus, and other herbaceous plants. These all delight in rich soils, and should be well mulched with short, decayed manure.

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Wayville.—Gentleman's Residence, 7 rooms, hot and cold baths, gas right through, numerous offices and out buildings, beautiful overmantle, double lawns and standard roses, full-bearing fruit garden; £130 cash, balance £740; terms.

Glenelg and Henley Beach.—New 8 rooms, land 226 ft. deep, d. drainage £700.

Four rooms and kitchen, £460. seven rooms and kitchen; £575. Henley Beach.—Building Blocks, 20s. per ft.

East of King William St.—6 sound stone cottages, rents £124 per annum; price £1,050.

Near Car.—8 rooms, all stone, coachhouse, conveniences, fruit garden, gas, invite inspection, £850.

Walkerville.—6 rooms, con., fruit trees; £400

Unley.—D. Front, 5 rooms, 56 x 150; £450, and £50 deposit.

Prospect.—close car.—7 rooms, modern, all stone; 100 ft. front, more available,

planted mixed fruits; splendid order.

5 ac., River Frontage.—3 miles out, 500 fruits, including oranges, full bearing, good house, irrigation plant.

Some splendid 9 roomed houses, North Unley, and facing Park Lands, extra large rooms.

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Six Stone Cottages, newly papered throughout, over 11 per cent., and many others.

4 roomed Cottage, Freestone front, close 1d section, over 10 per cent., £250

About Vegetables.

The Kitchen Garden.

Operations for the Month.

— Seed Sowing. —

Seeds of any of the following may be sown during this month :—

American Cress
Broad Beans
Broccoli
Brussels Sprouts
Cabbage
Carrots (early sorts)
Cauliflower
Celeraic
Celery
Chervil
Corn Salad
Cress
Endive
Herbs (various)
Java Radish
Kale
Kohl Rabi
Leek
Lettuce
Parasley
Parasnips
Peas (early sorts)
Portugal Cabbage
Radish
Rampion
Rape
Red Beet (Long and Turnip)
Salsify
Savoy
Scorzonera
Sorrell
Spinach
Turnips
White Beet

— Planting and Transplanting. —

Plant early Potatoes; also Potato Onions, and Tree Onions.

Transplant Cabbage, Cauliflower, Celeraic, Celery, Chives, Herbs (various), Horse Radish, and Lettuce plants, and Mushroom Spawn.

— Keep Beds Clear. —

Beds from which crops have recently been cleared away should be well dug, have a heavy dressing of manure, if necessary, for the succeeding crop, and should be thrown up rough to enable them to benefit from full exposure to the weather until the time for planting arrives.

— Seed Buying. —

Get your supply of seeds for next season's gardening not later than this month if possible, and thus have them by you for sowing just when season and opportunity are favorable. Most seedsmen keep collections of seeds ready made up for posting, obtainable at from 2/6 upwards, and will be found cheaper than purchasing in single packets.

— Rotation. —

Keep the necessity of rotating crops well in mind for the better economy of the food stuffs in the soil. A crop of beans, for instance, should never be succeeded by a crop of beans. The plants of one family, having to a certain extent tastes in common, should only be succeeded by those of an entirely different family and character. An exact method of rotation should be worked out and strictly followed. Potatoes, as is well known, require a rich, well manured soil, and can, therefore, be followed by peas, beans, carrots, turnips, or cabbages, the same soil sufficing for them without further enriching. They in their turn should be succeeded by vegetables of dissimilar tastes.

The main point in rotating crops successfully is to make a study of the various tastes of the different subjects in order to be able, at the time of planting, to substitute one crop for another of a totally different capacity.

— Leek. —

Welshmen should remember that their national emblem, the leek, may be largely sown this month. It is relished by many others who appreciate its mildness. Prepare the bed for putting out at the same time as the seed is sown in the beds, and keep it cultivated to get a start on the weeds before the plants are put out.

If the seed is to be sown where the plants are to remain, a place should be chosen that has had a well-cultivated crop on it previously.

— Celery. —

Celery sufficiently advanced should be blanched by earthing up four or five weeks previous to its being required for the table.

— Rubbish. —

Clear away all refuse, exhausted vegetable crops, and all untidy matter to the rubbish pits, there to rot down and form soil for future crops.



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INSECT FOES.

— The Cabbage Moth. —

The caterpillar of this moth is a great garden pest. It chiefly attacks Cabbages and other greens. The moth appears during the whole summer. The eggs are laid on the leaves of plants and hatch in six or seven days. The method of feeding of the caterpillars varies according to the plant attacked. When the larvae are on a Cabbage they eat their way into the heart of the plant and foul it with moist green excreta, which gives a moist disgusting appearance. When attacking Turnips and other plants it devours the leaves down to the midribs. When mature the caterpillar enters the ground to pupate. The pupæ give rise to mature moths during the following summer. Hand-picking is the best remedy and should be practised when the caterpillars first make their appearance.

— The Cabbage Root Fly. —

This little fly is a serious pest on all plants of the Brassica tribe. Attacked plants are checked in growth, their leaves discolour and the plant falls away. The females lay their eggs on the ground close to the plant, and these are hatched in a week or so, according to the weather conditions. The maggots make their way to the roots, which they feed upon. When full grown the maggots pass into the soil a little way from the attacked plant, and become pupæ. The first flies of the year appear for their egg-laying about the end of April, and there are probably three generations in the year. A useful remedy is a cupful of paraffin added to a pailful of sand, and the sand sprinkled once a week round the stems of the Cabbages.

— The Celery Fly. —

The larvae of this fly cause injury to celery, tunnelling the tissues of the leaves and feeding upon the soft juicy substance. This causes the leaf to blister, and after a short period it shrivels up and is utterly useless to the plant. Sometimes the plant is killed, or the Celery is small, green and bitter in flavour. The fly lays its eggs singly upon the upper surface of

the leaves. In about 14 days the larvae change into pupæ, either remaining on the leaf or falling to the ground. Finely powdered soot or lime dusted over the plants while the dew is on them prevents the flies from laying their eggs upon the leaves. When the Celery crop has been taken from the trenches the earth should be levelled and well dug, and the upper surface well buried deeply to prevent the flies from coming up.

Double Digging.

If trenching or double digging were necessary in bygone days when cropping was not nearly so rapid as it is now when we are not content with crops following each other almost before the land is cleared but many go in for double cropping, and we find all sorts of Winter Greens, Broccoli, Savoy etc., getting established between the rows of potatoes so that the land is never at rest. In regard to trenching the difficulty with many is to get any ground vacant during the winter season when it can be done but there is not the slightest doubt that deep cultivation is the only way to effectually guard against drought, and with the experience of recent summers fresh in our minds it would be folly not to guard as far as possible against similar failure in the future. Artifectoral watering, mulching etc., are only aids to ward off the effects of drought. The real cure is a deep, thoroughly pulverised and liberally enriched root-run where the crops can defy the effects of drought. In gardens of limited area such as amateurs generally cultivate the best plan is to set it out in plots, and crop it so that the portion should become vacant in the winter season and receive its turn of trenching whereby it will really be made like new soil, for with all our skill and chemistry we do not improve on nature so rapidly as to be able to be put into the soil the exact elements that each crop requires. The object of the old practice of allowing land to lie fallow one year and cropping it the next was that nature might restore to exhausted land, through the agency of frost and rain, the very

things in which it was deficient. There is little chance of going back to this primitive mode of letting land, at least in gardens, restore itself simply by lying idle. We, however, must take care that we do not verify the old motto of the more haste the less speed becoming applicable to garden lands, for it is no use hurrying a large space of any given crop into the soil if by better culture we could have grown an equal amount of produce on a smaller area, and I am fully convinced that deep cultivation enables this to be done, and as regards manure there is little doubt but double digging saves manure, for it brings to the surface and within reach of the roots those nutritious elements that have been washed deeply down by heavy rains until they were practically useless; brought up again to the influence of the sun and air they become available for plant food. In trenching I utilise all the roughest of the garden refuse by burying in the bottom of the trenches all the old stems of Broccoli or any of the Cabbage family.

For old Strawberry beds that have become weedy there is no cure like burying the whole mass two spits deep, if possible, in the autumn or early part of the winter, which is the best for the work for then the newly turned-up soil gets the whole of the winter to become mellowed before the seed time comes round again; but still any time during winter does very well, for trenching is good work during cold weather, and when the depth of good soil is not sufficient to allow the bottom spit being turned right on the top of the first, it should be well broken up, with forks, so as to increase the depth of friable soil, the best antidote for crops suffering from drought yet invented.

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Salsify and Scorzonera.

Salsify and Scorzonera.—These two vegetables require the same treatment. Salsify, when well grown, should be crisp and white in flesh, like the Parsnip, and it requires a deep, rich, and well-pulverised soil that has been well manured for some other crop the previous year. The seed should be sown during April and May, in drills drawn 1 foot apart, and it should be dropped into them thinly. After the plants have appeared above ground they should be thinned in the rows at about 9 inches apart from each other, and the ground should be kept well surface-stirred and thoroughly clean all through the following summer. The return of this attention will be the production of a good crop of long, clean straight roots, often as large as a moderate size Surrey Carrot. Although a useful and excellent vegetable that has been long known and used in this country, it is not much cultivated. It is admirable served up to table, with white sauce, throughout the autumn and winter. It is one of the most valuable substitutes for the potato and a heavy and weighty crop can be produced from any kind of soil. A few rows sown in an odd corner will produce many a good dish of wholesome food throughout the winter. When lifting the roots care should be taken not to injure them in any way, as they quickly bleed, and the loss of flavour to the root is the result. Scorzonera is grown for the root, as in the case of Salsify, but the root has a different appearance, inasmuch as it grows longer and more slender than Salsify. It is also more apt to run to seed. They are both worked in the same way, and the mode of culture recommended for Salsify will answer perfectly for Scorzonera.

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News and Notes.

Ripe strawberries were quoted at 2/6 per ounce or £2 per pound in England when the last mail left.

.....
If you save your own seed be sure and save only the best specimens of each kind. Seed selection is a highly important part of successful crop production.

.....
Potatoes and other vegetables should be covered from the light. They turn green and acquire an acid, unpleasant taste where the light strikes them for any length of time.

.....
Horse radish is often difficult to get rid of in the garden. Dig it out and keep digging it out; then sow a crop that will smother out what is left of it—such a crop as clover, turnips, peas, and vetches.

.....
Soil infested with slugs, wire-worms, or grubs should be frequently loosened a few inches to give the birds a chance to get at these pests. Soot and lime are effective remedies against these pests.

.....
The large cash returns from the potato crop are not only sufficient to pay for the manure or fertiliser used in its production, but in addition may be charged with a balance of plant food left in the ground enough to ensure a heavy yield of succeeding crops of the rotation.

.....
In order to hasten any garden crop to maturity mulch the plants with fresh droppings from the cow yard by putting it in some vessel, and then adding enough water to make it thin enough to pour easily. Make a little cup around the plants or a trench alongside the row, and pour into this so as to prevent the liquid getting right on the plants.

We post the "Australian Gardener" direct for 3s. 6d. per annum.

Brisbane's New Electric Clock.

We are indebted to Mr. Frank Wright, of the Central State Electric Coy., 20 Waymouth Street, Adelaide agents for the Synchronome Electrical Company, for the following particulars anent Brisbane's latest enterprise. The clock is made on the synchronome principle, and is actuated in conjunction with the other dial throughout the building, from the synchronome controller, giving electrical impulses every half minute. Neither the controller nor any of the ordinary dials requires any winding whatever, the electrical current being required obtained from the ordinary batteries used for bells or telephones. In the case of the post office clock, the hands are exposed to the weather, as in most turret clocks. The clock has 2 dials 5 ft. in diameter. Although the timing is given from the controller, the electric current necessary for the dial itself is obtained from the electric light mains, but as that could not be utilised to advantage operating every half minute, the actual movement of the hands is controlled by a small weight, which is wound every hour by an electric motor, the winding operation taking about 5 to 6 seconds to complete. The cost of the total consumption of current for the twelve months amounts to about 5s., thus being considerably less cost than labour can be obtained to wind it once a week. The latest installation fitted on the synchronome system in England is at the new Children's Infirmary, at Carshalton, Surrey. This institution consists of no fewer than 45 separate buildings, and covers an area of 136 acres. The clock installation consists of 140 dials and one controller, the wiring being of the simplest kind, one single wire being taken in a single series throughout the whole. The small amount of electrical energy required is shown when it is mentioned that the whole battery is maintained for three years for £5. One is bound to admit that electricity in the service of man must distinguish itself in its application to horology.

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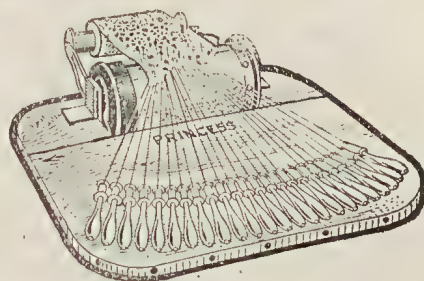
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We Sell the SECRETS of Lace-making, which have been jealously guarded for Centuries. There is a large demand for Laces made by our system, because they are ACCURATELY made. WE PURCHASE LACES MADE from those who are willing to dispose of their work, and pay top prices for them.

There is nothing that will enable you to make money as easily and pleasantly as Lace-making at home in your spare time.

Call at our offices and inspect the system and work, or send sixpence in stamps for our beautifully illustrated book "Practical Lace-Making."

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THE STRAWBERRY.

By W. J. ALLEN.

Owing to the great demand for good strawberries, I have had frequent inquiries as to the soils best adapted to their growth, how the land should be prepared, and the care of plants after setting out.

In nine-tenths of the country towns I have visited, either through lack of moisture or a spirit of apathy on the part of the fruit-growers and gardeners, I have found that few, if indeed any, strawberries are obtainable, and this during the season when they should be most plentiful. I am quite aware of the fact that in dry districts it is impossible to grow paying crops without water; but there are many localities where a sufficient supply can be had, and where strawberry growing could be made a paying industry, and there is plenty of room left yet for all of our growers to enlarge their beds, and, if they will grow good fruit, still find a ready sale for it.

Early berries as a rule bring the highest prices, but the medium and late, if of good size, quality, and deeply coloured before being gathered, are also very profitable.

The packing and grading of the fruit must not be neglected. This important factor in the realisation of high prices has, as yet, received very little attention, many growers considering it a waste of time; but if they would take the trouble to look into the windows of the fruit-shops, where all fruits are seen classed in different sizes, one would imagine that their first thought would be, "Why, what an improvement this careful grading and packing makes in the general appearance of the fruit; in future I will see that my fruit is arranged properly in the cases, and so get the top price for it!" I am sure that when once they do this they will never again relapse into the old slipshod method.

— Situation. —

In Canada where I have picked wild strawberries of the very best flavor, and where this berry is indigenous, it never

grows in hollows, or where the water lodges, but is found growing on knolls, or ground through which water passes freely, and doing especially well on soil been enriched by fallen leaves and decaying vegetation. In this respect, we cannot do better than follow nature's teaching, by choosing high and dry land. Boggy or swampy spots should be avoided unless drainage is provided. In this way most excellent strawberry ground may be sometimes obtained. Strawberries are always most highly flavoured when grown in the sun, and the bed should be situated so that it will get every ray of light from sunrise to sunset, berries ripening in the shade being indifferent in quality and lacking in colour and flavour. Shelter is good in bleak exposed places, to break the violence of the wind, and prevent injury to the fruit and foliage. Deep-rooted, and not surface-rooted, trees should be chosen for break winds around orchard or gardens; and last, but not least, the bed should be so situated that water can be applied when necessary. Localities where late frosts are frequent should be avoided.

— Soil. —

The Strawberry belongs to the natural order of Rosaceae, and is known botanically as *Fragaria*—from the Latin *fragens* (fragrant). It may be grown successfully in any soil which will produce good crops of corn or potatoes. To be most productive, however, the soil must be well drained, deeply worked, either by subsoiling or trenching, and well enriched with manure. It is true, good crops may be obtained without trenching, but not in such excellence, profusion, or certainty in all seasons. Taken as a whole, the very best soil, and one of the best adapted to the largest number of varieties, is a deep sandy loam. Certainly a rich clay loam, with a good under-draining, will give as large a yield, but the fruit will not ripen as early as in the sandy loam. Avoid, if possible, a stiff heavy clay.

— Preparing the Soil. —

If the land has not been fallowed the year previous to being planted, it is important that crops should have been grown which required clean culture, such

as corn, potatoes, and garden crops, as they are of great advantage in putting the land in good condition, and freeing it from weed seeds. Cowpeas, however, when grown and turned under, answer the same purpose, and add plant-food to the soil. The soil should be well drained to a depth of 2 or 3 feet, and ploughed and subsoiled at least 15 inches deep. If the subsoil is poor, it should only be stirred, but not brought to the surface; in any case, the land should be well worked, and enriched to a depth of at least 15 inches in the spring, then as previously stated, either fallowed or planted with vegetables which admit of being removed before the preparation and planting of the strawberry in the autumn. The root of the strawberry will extend as far down as the soil has been prepared and enriched and the yield will be abundant in proportion. Land deeply prepared and heavily manured retains the moisture so essential to strawberry culture, and enables the plants to produce the greatest quantity of fruit.

— Propagation. —

Propagation may be effected by seeds, runners, and division of the plants. Seed is rarely used, and only for raising new varieties. The seed should be saved from the finest berries, and must be fully ripe when gathered. The berries should be squeezed by hand in water, and the seeds which are on the surface of the pulp will, when detached from the skin sink to the bottom. After several washings, to remove as much of the pulp as possible, the whole should be strained through a cloth and dried.

Seed should be sown in the autumn or spring, in the light rich, open soil. It is the best to sow in boxes or pots, so that more care can be given than in the open ground. When the young plants have made four leaves they should be transplanted, about three inches apart, into small beds. The following season they will be ready for the plantation.

Plants are so freely produced by runners, in the case of most of the varieties, that no other method of propagation is needed, the best plants being those first formed on the runners.

Never use old plants which have been divided up, if young ones are procurable.

No plant needs more care in transplanting. The crown should be on a level with the soil, the roots spread fan-shaped when setting, and the earth well firmed around them. The runners should be well rooted in February, at which season I would recommend planting, wherever there is sufficient moisture, as the roots will get a good hold of the ground the same fall, and by the following summer make fine strong plants ready to begin bearing. If the season is dry the plants may be set in March and early April.

The following are the number of plants to the acre, at the distance mentioned:—

2 ft. x 1 ft. — 21,780

2 ft. by 1 ft. 6 in — 14,520

2 ft. x 2 ft. — 10,890

3 ft. x 1 ft. — 14,520

3 ft. x 1 ft. 6 in. — 9,680

4 ft. x 1 ft. — 10,890

4 ft. x 1 ft. 6 in. — 7,260

— Cultivation. —

Too much attention cannot be given to cultivation. As soon as the plants are set out the work must commence; after planting cultivate all the ground well and hoe around the young plants. If the season be a dry one, cultivate once a week; if moist, the plough may be used to turn light furrows, but care must be exercised not to cover the young plants while ploughing. Immediately after ploughing run a fine-tooth cultivator over to keep the soil from baking, and also to keep a nice fine surface which will retain the moisture. A good mulch applied at the time of fruiting will always be found very beneficial, as it helps to retain the moisture and keeps the berries from coming in contact with the soil, and becoming gritty and dirty. As soon as the fruit has been gathered remove the mulch, give the soil between the rows thorough cultivation, thin out, or only allow such young plants as are required to remain, and mulch the second winter in the same way as the first. Weeds must not be allowed to grow at any time. To obtain the best results, beds should be renewed every two years.

— Planting. —

The land should be in a good state of tilth, having, as previously recommended, been thoroughly worked to receive the young plants. If the intending planter has not raised the plants himself he should procure them from a successful grower and see that the parent plants are strong, fruitful, and free from diseases. Distance of setting depends upon the character of the soil, freedom with which the variety selected sends out runners &c. In such soils the rows should be from 3 to 4 feet apart, and the plants 18 inches apart in the row. Compactly growing varieties may be planted a little closer. This is called 'hill' culture, and consists of growing each plant by itself in a hill, not allowing the runners to grow; consequently each plant becomes stalwart and large, and when properly attended to produces the very finest fruits.

Matted Rows.—The system is generally adopted by large growers as it requires less labour to attend to a large area. By the matted row system more berries are produced on an acre than by hill culture, but the latter method gives larger and finer berries. The rows are set from 3 to 4 feet apart, and about 15 inches apart in the row. When the runners start they may be so arranged that they form a continuous matted row. The grower can suit himself as to how wide he allows the row to run. Some allow the rows to become 2 feet wide, and others only 1, according to the distance apart the rows have been set. The runners can be kept in check after the rows have attained the desired width by using a roller cutter, running up and down between the rows, or by the use of a spade or hoe.

Before planting the new plant all dead leaves and runners should be removed and the roots shortened by at least one-third of their length.

— Manuring. —

In the case of fruit trees, slowly available forms for plant-food or manure answer quite as well, and in many cases better, than the more active forms, since it is needed in small amounts through a

longer period. With strawberries the conditions are much different: the time of development of both plant and fruit is short, and hence the fertilising material should be quickly available in order to fully supply the demand for rapid growth and development. A thoroughly well-rotted manure is a good fertiliser. Soot may also be applied in spring in the proportion of 40 bushels to the acre. A good autumn dressing is equal parts of bone-meal and kainit—say, 3 lb to the square rod. Nitrate of soda is particularly valuable on light calcareous soils; it should be applied during the growing season in spring—about 200 lb. to the acre—and should be powdered and kept from the crowns. Wood ashes [and ground bones give fairly good results when the soil is rich in humus. The commercial fertilisers are found more beneficial where the strawberries are grown in rich gardens, but where field culture is pursued they are not so valuable as good heavy dressings of well-rotted barn-yard manure. In soils where there is a deficiency of lime, the superphosphate of lime, at the rate of about 2 cwt. per acre will not only be a good fertiliser, but will help to keep down insects of various kinds.

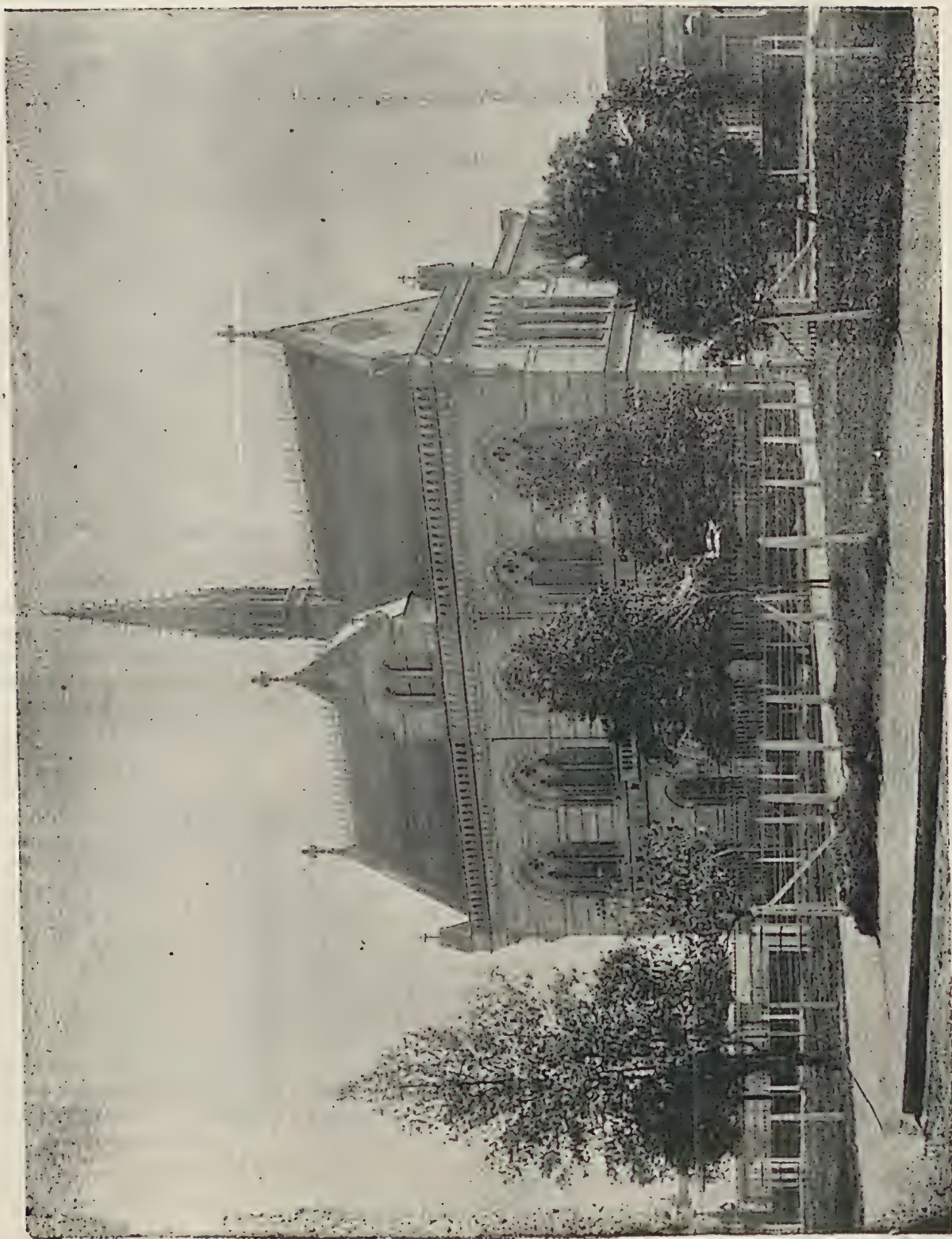
— Pruning. —

The strawberry, like other plants, has to be pruned in order to obtain the best results. As stated previously, when planting, all dead and withered leaves are removed, and the roots shortened to about one third of their length. When the first two hoeings are given, it is advisable to pull off the runners and all blossoms from autumn planted strawberries until the spring; while all blossoms should be picked off spring-planted berries until the plantation is well established, when runners are only permitted in such cases as they are required for propagating purposes.

(To be Concluded in our June Issue.)

—'Agricultural Gazette' of N.S.W.

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The Orchard.

Notes for the Month.

— Planting Deciduous Trees. —

Where it is intended to plant deciduous trees, either as refills or in laying out a new orchard, no time should be lost in getting the land into fit condition to receive them. If the trees are not already ordered, this should be done without further delay, and they should be planted immediately upon delivery.

— Space between Trees. —

In the average soil, the most suitable distance apart for planting apples, citrus fruits, peaches, nectarines, plums, pears, and apricots is 24 feet; in very rich soil, however, this distance may with advantage be extended to 30 feet. A few varieties of plums and pears would perhaps, do well if planted 20 feet apart; but, generally speaking, we favour giving trees a good space of ground to feed in, as owing to the recurrence of droughts, the trees, if they are at any age and planted close together, are bound to suffer more than those which have been allowed a liberal space of land from which to draw nourishment.

— Buy Stocks with Care. —

Many of our nurserymen fumigate the trees before sending them from the nursery, as an extra precaution against any unforeseen pest which might have settled on them by chance. We are pleased to say that we have nurserymen carrying stocks free from diseases, and it is from such nurserymen that growers should endeavour to procure their trees as the average orchardist quite enough to put up with, without the further imposition upon himself of any army of pests introduced with his nursery stock.

— Get Yearlings. —

In every case, the yearling trees is the best to buy, but there are many who have the mistaken idea that the largest must be the best. A well-grown yearling

tree is always preferable.

— Pruning. —

Pruning may be started towards the end of the month; but if the orchardist can put it off until next month it would be as well, as there is no advantage to be derived from pruning too early.

— Guarding off Jack Frost. —

Citrus fruits, where at all subject to frosts, should be properly protected before they have suffered damage from these causes. This may be done by binding loosely about the young tree a sheaf of maize or sorghum stalks, tea-tree bush, or anything that will afford the tender foliage fair shelter.

— The Use of Lime. —

Many of our fruitgrowers are now using lime in varying quantities from a half to 1 ton per acre, and have derived very gratifying results from its use. Lime has the effect of changing the physical properties of a clay soil, making it more friable and easily cultivated, and putting it into a condition so that water may pass more freely through it. This will make it less susceptible to extremes of dry or wet weather, and make it a good home for the order the older or larger trees, being led roots of the plants. The action of lime on sandy soils will naturally be the reverse stick together, and in such condition that they will hold more water and not dry out so quickly.

— Codlin Moth and San Jose Scale. —

See that no codlin moth grubs are left under the branches on the trees; but instead of removing the latter, allow them to remain for a month or two, as it is possible that during the cold and rainy season a few odd ones may be driven from their shelter, and will find a refuge in these bandages. The latter, however, need only be examined occasionally. We would strongly urge those who have been troubled with the San Jose to spray the trees with the lime, sulphur and salt solution after pruning, and not to fail in burning the prunings. In this way the very worst trees can be practically cured at a very small cost.



W. GILL, Wagon loaded with Piles cut from Tasmanian Blue Gum (*Eucalyptus globulus*), grown in 22 years in Bundaleer Forest Plantations.

[PHOTO

Spraying.

W. J. Allen and J. R. G. Bryant.

This operation is now looked upon by all progressive fruitgrowers as work which must of necessity be carried out, as they realise that a tree covered with scales and other pests can no more yield fruit which commands the attention of buyers than an orchard where the cultivation, pruning, and manuring are left to nature's sweet will. There are still, however, a number of growers who have not realised the importance of this feature of work and a certain percentage of fruits is lost annually, much of which, by the timely application of a spray, could, no doubt, have been saved. It must be distinctly understood that in ninety-nine out of a hundred orchards spraying is absolutely essential. Diseases may not occur every year; but experience have shown that

they recur frequently, and in years of serious epidemics the profits from spraying are so great, that the grower can afford to spray regularly as an insurance against loss. The following are four operations upon which all permanent success in fruit culture largely depend, viz, cultivation, manuring, pruning, and spraying. Spraying is last, but not the least important.

In the treatment of pests and diseases the principal point is what remedy to use. Then comes the point of applying it. The orchardist must identify the cause of his trouble, because as a rule insecticides are of no use against lungous diseases and vice versa. There can be no doubt whatever in the mind of up-to-date orchardists that the annual winter dressing of lime—Sulphur, or Bordeaux mixture is of a very great benefit to the trees. Most growers know (forseeing is believing) a great loss is caused by injurious insects and fungus diseases; but only a few

realise as yet that loss is really a benefit to every up-to-date grower. For as it is known that this loss can be prevented by intelligent effort, it is only the won't-be-convinced, none-thinking orchardist who will not put spraying into practice. This gives the energetic and progressive man an immense advantage. The demand for inferior fruit does not pay expenses, because it has no chance of sale alongside the choice fruit. However, the work must be done intelligently, or the time and labour is wasted. Thorough intelligent spraying means the use of a good spray pump and outfit, and above all, a knowledge of the enemies to be treated, and of the remedies found to be most effective, their preparation, and the proper time for the application. Prevention of fungus diseases is possible; but their cure is hardly practicable. When failure occurs, it may generally be attributed to the lateness of the application. Spray in time, and study the subject fully. Spray-

ing is not a cure-all. It will not bring back life, nor restore the leaves after they have been eaten off by caterpillars. The best results are not obtained the first year especially when spraying for fungus diseases. Success will be found in spraying only by thorough attention to details. The spray must actually reach every point which it is intended to protect. In applying winter sprays a coarser nozzle can be used than for summer sprays because the object is merely to form a complete coating of the spray over the wood. In summer spraying, however, can exceedingly fine, mist like spray reaching every portion of the plant, and covering with minute dots, preferably no larger than a pin's head, every square inch of the foliage, is necessary.

The nature, causes, and remedies for pests and diseases are often very uncertain; therefore unscrupulous people attempt to make money by selling quack remedies. Be very careful, in buying mixtures, to obtain them from reliable firms only, and after they have been thoroughly tested

— Fungoid Diseases. —

Most diseases of plants are caused by low forms of vegetable life known as fungi, which live upon and within the tissues of the higher plants. The main difference, other than size, between the fungi and the higher plants is the lack of a green colouring matter so abundant in the higher order of vegetation. The method of development in the fungi are often different to those of higher plants, and their microscopic size renders their study more difficult. The parasitic fungi spend the winter months mostly within the living and dead vegetable tissues, and during the early spring days send out small spores, which correspond to the seeds of the higher plants. These spores disseminated by the wind and other agents from plant to plant. With favourable conditions as to moisture and warmth, the spores send out small branches, which penetrate into the living tissues of the higher orders of plants. By the application of a fungicide to a plant, we destroy

the spores which have found lodgment upon it, and thus prevent the development of additional spores which would cause disease. Just as long as the tissues of plants are covered with a thin, even coating of fungicide, very few fungi can develop upon them. Thus if a fungicide is applied at regular intervals of about two weeks during the spring and early summer, most of such plant diseases may be held in check. A fungicide is a preventive, and its application should begin long before the disease has advanced far enough to manifest itself to any extent.

Orchardists should profit by the experience of former years, and when grape vines or apples are affected any year with black spot or other fungus disease, they should begin spraying with the fungicide the following season, long before the time of the appearance of the disease.

— Leaf-eating Insects. —

There is a great difference in the manner of which insects take their food. Some eat the leaves, while others suck the plant juices. Orchardists must know to which of these two classes a particular insect belongs to know what remedy to apply. Insects which eat the leaves have their mouth-parts formed for biting off pieces of vegetable matter, and in this way eat their food in much the same manner as do the higher animals. The insects which suck the plant juices, have their mouth-parts formed into a beak which is inserted into the plant tissues. Some of the best known of the leaf eating insects are the Codlin Moth, Vine Caterpillar, &c. These insects can be destroyed by a stomach poison (insecticide)—a poison which kills the insects when taken into the stomach along with the particles of food. We apply this class of insecticide to the plants, making no effort to apply it directly to the insects.

— Scale Insects. —

These are small, sucking insects, which must be killed by a contact insecticide, applied directly upon them, which will kill them by penetration and irritation. Hydrocyanic acid gas is also used, and has proved the most efficient.

— Plant Lice. —

These are the insects so common upon a great variety of plants throughout the early spring and summer. They may be green in colour or black, such as Green Aphis or Black Aphis. Some are red. Plant lice may or may not have wings. The most common form during the summer months are the wingless females, which produce living young; winged form of plant lice, and the treatment for them is an external irritant insecticide.

— Materials Used in Spraying. —

Fungicides are materials used in destroying fungi, which are low forms of vegetable life causing disease in plants. Correctly speaking, the fungicide acts as a preventive of plant disease, by obstructing the germination of the spores of the fungi causing such disease. These spores grow upon the exterior portion of plants. If we cover the plants with a coating of a copper salt, such as bluestone, or other chemical injurious to the germination of the spore, the reproduction of the fungi is held in check.

Insecticides are those substances used in destroying insects. The materials used in spraying are divided into two classes: the internal poisons and the external contact irritants, known also as the internal and external contact insecticides. Internal poisons are only used for those insects that bite their food; and they kill because of their poisonous action. The external contact insecticides act by their penetrating and irritant qualities. These are used against all insects whose mouth-parts are formed for sucking.

— Spray Pumps and Outfits. —

The particular outfit to be selected for spraying purposes will depend altogether upon the amount and character of the work of spraying. A pump simple in construction is not to be preferred. No one outfit can be expected to suit all the varying conditions of spraying. Hand-pumps should give great pressure with the least expenditure of power. All working parts should be made of brass, and easily taken to pieces. No type of spraying outfit is more widely used or has given better satisfaction, than the barrel-

pump. There are a great many different makes on the market, of which many are efficient and successful. They are mounted in a great many ways, an ordinary fifty-gallon whisky barrell forms an excellent and inexpensive tank for holding a spray. The pump according to its design, may be inserted in the end or the side of the barrel. The barrel may be mounted, to suit the operator, on a slipe, or on two wheels, or it may be placed in a cart.

— Hose and Nozzle. —

Nothing contributes more to success in spraying operations than globe hose and nozzles. In ordinary spraying operations half-inch hose is generally used. Good three or four-ply hose should be bought. It never pays to use cheap hose in spraying, as they are subjected to a great deal of rough handling.

The couplings should be of a style readily adjusted, and everything must be kept tight to withstand pressure.

— Nozzles. —

One of the most important parts of the whole apparatus is the nozzle. Good results in the application of the spray mainly depend upon the efficiency of the nozzle. For general use the best nozzle is the vermoral, or a nozzle of that type. The four most commonly used nozzles are as follows:—

The Vermorel.—This nozzle undoubtedly throws the finest spray of any. In its use the nozzle should be held quite near the foliage or branches, as the liquid is not thrown out with much force.

The Bordeaux.—This is a splendid type of nozzle. It has the advantage over all other spray nozzles in that the character of the spray is readily changed from a solid steam to a mist-like, fan-shaded spray. If there is any clogging of the nozzles, it is easily remedied by turning the handle, thereby forcing out the obstruction with the pressure of the pump.

The Cyclone.—The spray from this nozzle is conical shaped, similar to the Vermorel.

The Friend.—This nozzle is coming largely into favour.

— Extension Rods. —

The ends of the hose should be attached

to extension rods of suitable lengths for the work. For all lengths above 6 feet a bamboo extension rod is recommended. This consists of a small brass tube, supported by a bamboo rod.

— Taps. —

On the extension rod a tap is generally placed for turning the liquid on or off. For this a half-inch wheel valve is the most convenient.

— The Agitator. —

All pumps should be fitted with good agitators. The proper agitation or inter mingling of the spray liquid is one of the chief features in spraying and unless it is thoroughly done, good results will not be obtained.

— Care of the Outfit. —

A spray-pump, like any other machine, will do good work, and last in proportion to its care. When a pump does not work properly, the cause of the trouble should be ascertained at once and remedied. Otherwise permanent damage may result. When a spray pump is first received, its working parts should be carefully studied. After the pump has been used, it should be thoroughly washed out with warm water, as most of the spraying mixtures are highly corrosive in their action. The hose should also be thoroughly washed out, and especially after using oil sprays. Always keep the barrel filled with water when not in use, to prevent the wood from warping and the hoops becoming loosened. With proper care the pump should last several years; the hose, however, will probably have to be replaced after one or two seasons.

— 'Agricultural Gazette' of N.S.W.

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Interesting Orchard Notes.

Fruit trees, especially apples, always thrive best on a rich clay loam that rests on a limestone foundation.

* * * * *

When planting fruit trees give them plenty of room to spread their branches and color their fruit in the sunshine.

* * * * *

Each bearing apple tree should have at least 300 square feet of surface for its roots and branches to spread and develop.

* * * * *

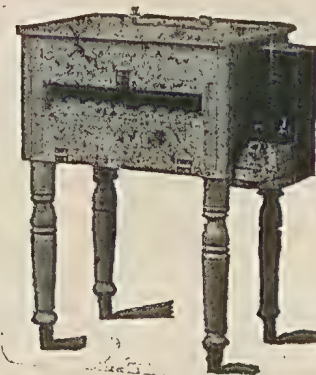
May is a good month to plant citrus trees, as if the ground is in good order, they will get established before the winter, and are ready to make a vigorous growth in spring.

* * * * *

Carefully prune each injured root before planting, and cut the tops back in proportion to the loss of roots during transplanting. Stamp the earth very firmly about the roots.

* * * * *

The modern fruit-grower can do almost anything with trees, except training a Christmas tree to grow its own presents.



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THE FARM.

Harvesting Lucerne for Seed.

In harvesting alfalfa for seed, cutting should be done when the greater proportion of seeds are hard, but not sufficiently ripe to shell. At this stage a majority of the pods are turned a dark brown color, and the seeds are fully developed. Frequently the cutting can be raked into windrows after two hours if the weather is drying, and in two or three hours more put into cocks and let stand from twenty-four to forty-eight hours, as the weather may justify. It should, however, be well cured and thoroughly dry when put in the stack, or there is danger of heating, and stack-heating seriously injures the vitality of the seed. It is not uncommon, if extremely ripe, to leave the cutting in the swath only an hour or a half-hour then stack, and let stand for autumn or later threshing. If allowed to stand in the stack for about thirty days, the entire mass goes through a sweating and curing process which makes the threshing easier, while less of the seed is left in the straw than would be if it had not been stack-cured. In western Kansas many seed raisers cut their seed crop with a self-binder, put the sheaves in shocks the same day, and thresh in about ten days, or put into a stack to await a convenient threshing time. They claim to procure 20 per cent. more of the seed in this way than if they cut with the ordinary mower. Others cut with a mower having a dropping attachment which leaves the alfalfa in small bundles at the will of the driver, in the centre of the swath, and these are 'straddled' by the

team and the wheels of the mower in the consequent rounds. These bunches are left for two or three days and then stacked. There is little, if any, danger from mould or spontaneous combustion in stacks of alfalfa cut for seed, but there is danger of heating in the stack if stacked when damp. If bright, clean seed is expected, the stacks must be well topped with slough grass, covered with tarpaulins or boards, or given other protection. It is better still to put the alfalfa intended for seed into a barn. One western Kansas farmer reports that he used a self-binding harvester, shocked the sheaves like those of grain, let them stand ten days, and then put them in a mow, with no bad results.

Work on Rainy Days.

The desirability of introducing method into farm work is never more noticeable than on rainy days. On a well managed farm, there is no time for idling, each man having plenty to do, whether wet or fine.

It is a great advantage to keep a list of jobs to be done on rainy days always hanging up in an accessible position. It should be written on stiff white paste-board, in a large, round, distinct hand, so that every hired man can read it. All the men are instructed, whenever rain comes on, instead of standing idle under sheds or in burnes, to repair at once to the workshop, and commence on such work as may be named first on the list, or may have a pencil mark drawn under it, or which they may think needs doing first, according to the circumstances of the case.

The following is a sample of a list of this kind.

1. Clean and sweep floors of outhouses, barns, shop, etc.
2. Clean all tools, harrows, ploughs, cultivators, waggons, hoes, spades and everything you can think of.
3. Put all tools accurately in their allotted places, if any have been left out.
4. Oil with petroleum all tools made of wood or partly wood, as ploughs, harrows, waggons, rakes, spades, etc.

5. Clean and oil harness.
6. Sprout and assort potatoes. Assort apples in winter or spring.
7. Grind hoes or spades.
8. Clean henhouse and whitewash it.
9. Shell corn.

During wet weather, when not raining, repair board and rail fences, gates, etc.; pile manure, scrape barnyard, spade grass around trees, etc.

Life of Lucerne.

Alfalfa (Lucerne) is very long-lived; fields in Mexico, it is claimed, have been continuously productive without replanting for over two hundred years, and others in France are known to have flourished for more than a century. Its usual life in the United States is probably from ten to twenty-five years, although there is a field in New York that has been mown successively for over sixty years. It is not unlikely that under its normal condition and with normal care it would well-nigh be, as it is called, everlasting.

Cultivation of the Potato.

By the Editor of the 'Queensland Agricultural Journal.'

(Continued from March issue.)

— Disease of Potatoes. —

It is perhaps not stating too much to say that a very large percentage of disease is due to specific causes, both of which could be prevented.

Unfortunately, the means of prevention do not generally commend themselves to the majority of Queensland potato growers. An important fact which has been observed is, that when diseased potatoes are planted, after the crop has been lifted, the remains of the old seed potatoes, when brought to the surface of the ground, will produce a crop of fungus bearing myriads of spores. If such old seed potatoes are kept buried in soil until

the following season, and then exposed to light under favourable conditions, fungus fruit is still produced, and continues to grow so long as a scrap of old potato remains. One often sees in horticultural periodicals statements to the effect that say, 10 acres of badly diseased potatoes were ploughed in, not being considered worth lifting. Now in the face of this, it is not difficult to understand where the germs that first infest a crop come from, and with the well known necessary conditions of moisture and warmth, an epidemic breaks out at once. If the necessary conditions are wanting, however, the fungus, although present, cannot attack the potato leaves; but the absence of disease does not necessarily prove the absence of the fungus, but only the absence of the conditions necessary to enable the fungus to attack its host. In all probability, the fungus is always present in land where potatoes are grown at short intervals, as in this State.

It is just as important to collect 'sets,' or the whole crop of diseased potatoes, as it is to gather the sound ones. 'But' says the farmer, 'such work would never pay.' It might not appear so, but eventually it would more than pay.

A second very fertile source of disease is due to planting infected potatoes. perhaps no farmer would plant obviously diseased potatoes, but the danger arises when the potatoes exhibit none of the external signs of disease, but, when cut, just show indications of the discoloured patches characteristic of the fungus. The obvious check to this source of danger is to cut all potatoes used for planting, refusing those suspected of being diseased.

(To be continued.)

Farmers should only use seed of the best quality. The grain should be fully matured, perfectly free from injury during threshing and true to kind. So alive to this question of 'kind' are barley-growers that they give high prices for pedigree stock, as it is termed, growing a few quarters every year or two, and so have continually a pure stock of corn to grow from.

THE ONION EEL-WORM.

Experiments for the Eradication of—With a Short Description of its Life History and Habits.

[By W. Laidlow, B.Sc., Micro-Biologist and C. A. Price, Microscopist, in the 'Vic. Journal of Agriculture.']

(Continued from last Issue.)

During the season 1909, further experiments with some of the more recent chemical substances were again undertaken by the Department, the land being kindly placed at our disposal by Cr. R. Willey, of East Bellarine, who is an old resident, and a close and enthusiastic observer of the eel-worm and its habits.

The soil in this district forms an almost ideal nidus for the development and spread of nematodes, being volcanic, rich in humus, and capable of retaining a large amount of moisture. The following recent analyses will give some idea of its richness in plant food:—

	Parts per 100,000		
Nitrogen	284
Phosphoric acid	102
Potash	637
Lime	1,100
Chlorine	2

The large quantity of lime present in this soil is mainly due to the use of sea shells as a means of altering this mechanical condition, it being of a very sticky, tenacious character, when moist.

A number of plots were set apart for the experiments, each measuring one-fourteenth of an acre. The land, having been recently ploughed and harrowed, was in a fine condition; but, owing to the wetness of the season, together with the sticky nature of the soil, and the absence of drainage excepting that of the natural fall of the ground, it was somewhat difficult to apply the chemicals to the soil, especially those in solution.

The following is a list of chemical solutions and powdered substances used in the experiments, together with the cost per acre:—

Plot 1—2½ lb. of Potassium Cyanide, at 10d per lb., £4 3/4.

Plot 2—3 pints of Cyllin, at 7/ per gallon, £5 5/.

Plot 3—½ lb. Potassium Cyanide, at 10d per lb., £1 5/.

Plot 4—25 lbs. of Apterite, at 10/ per 100 lbs., £10.

Plot 5—3 lbs. of Vaporite, expense prohibitive.

Plot 6—1½ tins of Pestox, at 1/6 per tin, £4 10/.

— Method of Application. —

Plot 1, 1-40th of an acre.—Watered three times with 100 gallons of Potassium Cyanide, .08 per cent solution, at intervals of three weeks.

Plot 2, 1-40th of an acre.—Watered three times with Cyllin solution, 1 pint to 100 gallons, at intervals of three weeks.

Plot 3—1-40th of an acre.—Watered four times with 100 gallons of .025 per cent solution of Potassium Cyanide, at intervals of two weeks.

Plot 4, 1-80th of an acre.—Treated with 8½ lbs. of powdered Apterite, forked into the soil to a depth of 4 inches, on three different occasions, at intervals of two weeks.

Plot 5, 12 square yards.—Treated with 1 lb. of Vaporite in the same manner as Plot 4.

Plot 6, 1-40th of an acre.—Watered three times with 100 gallons of water containing 1½ lbs. of Pestox, at intervals of two weeks.

During the time the plots were under treatment, the almost continuous rainfall tended to facilitate the solution of the powdered substances, and the absorption of the chemical solutions.

The expense of some of the chemical substances is very great, and their application requires a great expenditure of time and labor. When powdered chemicals were used they were cast over the soil and then dug in to a depth of 4 inches, the onion seed being sown some three weeks later. The seed germinated freely and did not appear to show any ill effects from the chemical treatment which the soil had undergone. Unfortunately, very low temperatures prevailed at this time, which greatly retarded the growth of the young plants. Owing to the heavy rainfall some of the plots were completely flooded. A subsequent inspection of the plots showed a number of broken rows of young onions, many of which had reached the height of 1½ inches, almost all of which were diseased. Even on the higher ground the plants were found to contain worms in different stages of growth, in both the stems and leaves.

(To be Continued.)

Miscellaneous Items.

You can-ke p twice as much stock on
plough land as on grass land.

† † †

Mr. MacLennan, a well known South
Americn buyer, bought a pedigree bull
from Mr. C. F. Raphael recently for the
amazing sum of £1,050.

† † †

The town of Huntingdon has the
unique distinction of possessing the
largest meadow in the United Kingdom.
On its 300 acres there is not a tree to be
seen.

† † †

Learn to grow lucerne; it is the
greatest cut and-come-again crop farmers
have. It gives you three splendid
harvests in the year and leaves your soil
wonderfully rich for next year's grain
crop.

† † †

In those parts of the country where
milk is plentiful and cheap it should be
given to the pigs. The cream should be
removed first. There is nothing like
skim milk for fattening young pigs.

† † †

Cooking it does not increase the value
of meal, and it is said to be not so easily
digested. Potatoes and turnips, how-
ever appear to be improved by cooking,
but in all other cases the food is best
given to pigs uncooked.

† † †

The beef calf should be fed about the
same as its dairy brother or sister, only
it takes from two to four pounds of milk
more per day to satisfy him, and one
should let him have whole milk for a
longer period, which is thirty days.

† † †

If we could see all the grubs and worms
that the frost puts out of the way every
winter, it would help us to bear cold
weather with better grace. If we plough
late, we give the frost a good lift in his
work. That makes it easier for him to
reach down and get hold of the pests that
do us so much injury.

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CITY, 4 Handsome Residences, terrace frontage, mortgagee selling, considerably underlet at present, but capable of great improvement as to appearance and rental value.

— £770 —
COLLEGE PARK close tram line, mortgagee selling. Villa, 6 rooms. Bargain

— £00 —
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— £450 —
MAIN ROAD, MILLBROOK, 17 miles from city, Poultry and Pig Farm, 5 acres, wire netted, large shed, fruit trees 100 all sorts bearing 700 coming along, permanent water.

— £700 —
HYDE PARK, beautiful situation, Villa, 7 rooms, bath, etc., 50 x 175, garden, trellis of vines, perfect order.

— £1,050 —
EAST ADELAIDE, Villa, 9 rooms, every convenience, large block.

— £1,000 —
HANDSOME RESIDENCE, 7 rooms, etc., 1½ miles G.P.O., City, trap shed, 115 x 180 ft., garden.

— £1,450 —
NORTH ADELAIDE, Gentleman's Residence, 9 rooms, well situated, and every convenience.

— £250 —
NORTH ADELAIDE, close by Wellington Square, double front house, 4 rooms, shed, pay splendidly as an investment

— £800 —
UNLEY ROAD, Parkside, Large Shop, Workshop, and Dwelling, 6 rooms, tip-top corner block, let at 25/ week.

— £215 —
CITY, by East Terrace, detached house, 3 rooms, let at 9/ week.

— £750 —
HYDE PARK, electric tram frontage, Handsome Villa, return verandah, cellar, bath, pantry, verandah back, oranges, lemons, fine block.

— £340 —
CITY, west part, detached, double front, 4 rooms, passage.

— £300 —
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Present profits £6 weekly. Owner will satisfy you as to bona fides.

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The Coming District, PROSPECT.
Main Road, £4 per foot, 200 feet deep.
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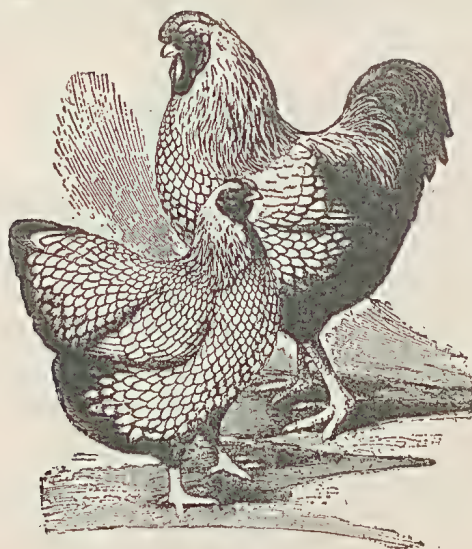
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❖ ❖ The Poultry Yard. ❖ ❖

The £ s. d. of Fowls.

Poultry-keeping is a good business if you treat it as business. Most people play at it like a game of chance. That's why they so often lose.

A hen is a customer of yours which buys food and hires shelter. For this she pays, chiefly in eggs.

If you can't tell at any moment how the account stands between you and each hen, you are working for failure, not for success.

If you like to look upon poultry-keeping as a charitable institution for the maintenance of cocks and hens, well and good. It's no business of others how you waste your money.

If, on the other hand, you 'are in' for making money, you will make it certainly if you follow the golden rules of all sound business: Study the cost of production and study your markets.

Buy what you require in the cheapest and sell what you produce in the dearest markets.

Study the cost of production. A hen which lays only six dozen eggs in the year is not worth the trouble of keeping. Sell her off, and get one which will lay double the quantity.

How to Raise Ducks.

Ducks' eggs must be dampened during hatching, whether under a hen or in the incubator. They should be dampened once each week during the first three weeks and the fourth week about three times; lukewarm water must be used.

When hatching you may assist them if they are slow in coming from the shell and it will not hurt them in the least.

They should be taken from the nest as soon as dry, when it is warm, or the hen might squash them. It is not necessary that a hen should run with them if you have a little place for them. They do not need hovering more than a few nights.

It is important that they should roost on a floor and not on the ground when young.

The feeding should receive careful attention.

Never feed anything the first twenty-four hours, then commence by giving them new milk. After feeding milk a day, add moistened breadcrumbs, and soft cheese mixed with sand; sand is also kept on the floor of their houses and runs.

Let them out of the house the third

day and commence giving them water and add corn meal, bran, and a little beef scrap to their feed, and feed in this way two weeks.

Always give ducks a wet feed, and never feed corn meal alone, as it will kill them.

After they are two weeks old give them plenty of green food, such as cabbage and lettuce. It is a good idea to sow a small patch of rape for them. This bulky food rushes their growth and reduces the feed bill.

Plenty of fresh water must be provided for them, but they must not get very wet when young; later on it will not hurt them. It is not necessary to have a stream of water to raise ducks; for if you allow young ducks to wash and swim as much as they want to you will lose them.

Feed five times a day for the first two weeks, until the fifth week four times, and from then three times each day. Give coarse meal, adding more bran and beef scraps, never forgetting water and plenty of green food. Continue this system of feeding and management and you will raise 95 per cent. of your ducklings.

Egg Eating.

The poultry breeder has many troubles to contend with. One of them is the habit developed by many fowls of eating eggs. This is a vice most difficult to cure. Some poultry breeders fill egg shells with cayenne pepper and mustard, and this remedy is effective in some cases, but does not do anything in other cases beyond causing a mild surprise. After the fowls have got over their first surprise they continue to eat eggs as before. Nowadays many makers supply nests which are made in such a way that when an egg has been laid it rolls away out of the reach of the hen. In many cases the only real cure is to kill them.

COMMERCIAL AND ORNAMENTAL PRINTING of every description in first-class style, on the shortest notice, and at cheapest rates, at the "Australian Gardener" Printing Works, Scrymgeour's Buildings, 20 Waymouth Street, Adelaide.

Poultry Farming on Small Holdings.

[By H. V. Hawkins, Poultry Expert, in
• Victorian Journal of Agriculture.]

(Continued from last Issue.)

—Perches.—

These should always be low. Eighteen inches from the ground is ample and the perches should not be nailed. When nailed you have always to contend against the vermin trouble. The little red mite, if allowed sufficient latitude, will drain the system of any fowl, and the very essence of egg-production is drawn from the body of a hen in an infested house. It will pay better to secure insect-proof perches, which may be constructed as follows:—Take a piece of iron tubing 24 inches long, and an ordinary jam tin, cut a hole in the bottom of tin sufficient to allow the tubing to pass up through the tin within 6 inches of the top, then solder the tin to the iron. The perch should be about 8 inches shorter than the length of the house. Bore a hole in both ends of the perch the size of tubing, and when the tubing is fixed on to a heavy stand or driven into the floor, place the perch, which should be made of 3 in. x 2 in. hard wood, on top. Perches require to be about 3 inches wide to prevent crooked breasts. These are often caused through the birds roosting on narrow perches. When the perch is in position, pour a little kerosene into the tins at each end, and the perches will be insect proof.

— Floor Catchment. —

The continual cleaning of the floor is usually followed by the ground becoming basin-shaped; and the result is a damp floor in the winter. A cheap and effective plan to prevent this is to purchase a piece of black tarpaulin, about the size of the floor and nail this on to two pieces of wood, one at each end, and place on floor of house. Every morning roll it up and

empty the droppings into a wheelbarrow. If the birds have been scouring, through eating too much wet grass, and the carpet of the tarpaulin has become very dirty, remove it to a tap, and put the hose on. Then hang over a fence to dry. It is advisable to throw a little sand to prevent the droppings adhering to the tarpaulin. This system works well, saves a great deal of time, and prevents the spread of warmth.

— Trap Nests. —

Trap nests will assist the farmer to discover the good layers, and will enable him also to pick out the unprofitable birds which are too often bred from unknowingly. These should be used for table purposes; on no account waste food in keeping bad layers. Nests should never be made inside the fowl-houses nor yet adjoining. The better plan is to have them in a shady, darkened spot, away from the house. If the hens are allowed to make nests in the houses vermin is encouraged.

— Dust Bath. —

A dust bath should be provided in every breeding pen, and should consist of a shallow box 5 by 4 feet, in which sand, ashes, and some sulphur, and a little insecticide, should be placed. This should dry, and have a cover to move on or off. Neglect of the bath means an increase of the fowl fleas, which, unlike the blood mites which are only found out at night, live on the body of the hen, and drain it of much of the egg-forming elements. These parasites lay countless small white eggs, almost the size of silk-worm eggs, on the downy, part of the feathers, especially under the wings and near the vent. In the early autumn, when the birds usually lose their old feathers, these eggs are carried about the farm, are duly hatched and return to the newly feathered flock; therefore the necessity of a dust bath is apparent if we expect our birds to do anything above the old time barnyard fowl. We live in the days of improved methods, and the more we attend to the little details, the better results accrue.

(To be continued)

Poultry Brevities.

Wheat is a fine morning feed.

† † †

Boil and mash some of the small potatoes and feed them to the hens. They are good for eggs.

† † †

Never feed mouldy feed to a hen. That's the way a good deal of sickness comes to the poultry yard.

† † †

Never use an incubator until you have tested it. Too much variation in temperature will ruin the hatch.

† † †

Be neat in your hen housekeeping. Have a big box handy to the houses; and keep the manure good and dry.

† † †

When you are laying in your grain for winter feed, don't forget to put in a lot of oats. There is no better feed.

† † †

Hens and pullets that are allowed to run with a male bird come on to lay more quickly than when allowed to run alone.

† † †

Hens are like folks about all wanting the highest places. They will quarrel over them, but put them on a level, and you will fix them all right.

† † †

Poultry, when well bred, fed, and cared for, is capable of turning a given quantity of raw material into more pounds and shillings than any other animal on the farm.

† † †

Keep the hens out of damp quarters. Dampness breeds roup and other diseases. Put a floor in the chicken house or throw in a lot of straw to keep chickens off frosty floors.

† † †

Clean the windows of the poultry-house by washing with soapy water and drying with cloth or paper. Clean windows let in the warm sunlight on cold days, adding health and comfort to the flock.

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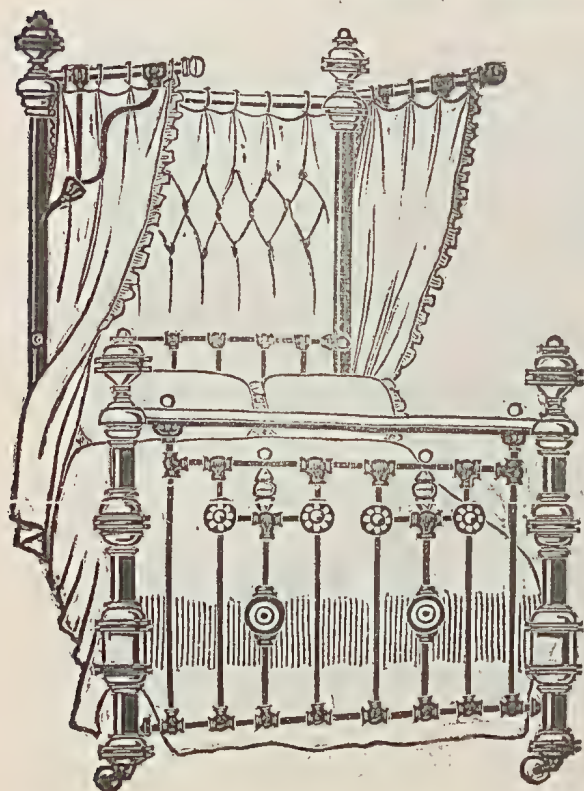
Most Furniture looks alright when you see it in the dealers showroom, **but will it Stand the Test of Time?** Will the drawers run as readily in Winter as in Summer? Has the same care in construction been given to the unseen parts as to those that show? Are the designs artistic?

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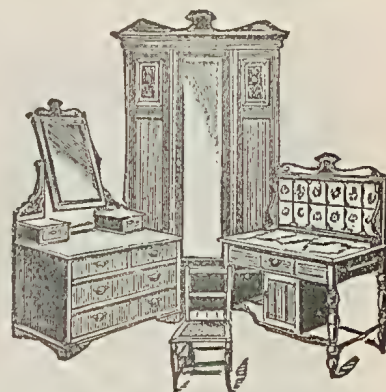


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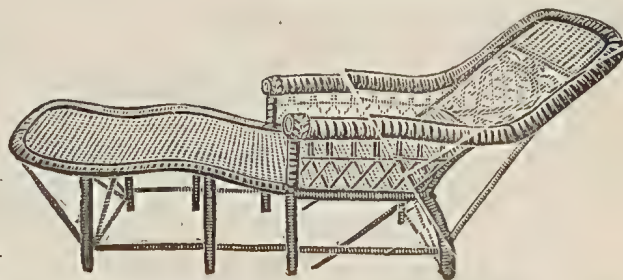
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By using this appliance you are enabled to **Finish Three Heavily Trimmed Skirts while making One in the Ordinary Way.** With this invention it is impossible to cut a wrong fitting skirt, as everything is cut out mechanically.

Any Skirt can be designed—Trained or Circular, Child's or Adult's.

Highly Recommended by Leading Costumiers.

SOLE AGENT FOR THE COMMONWEALTH.

J. W. ALFORD, No. 6, ARCADE, ADELAIDE

For the Home.

Tips to Men.

— To Remove Tar from the Hands. —

Rub them with the fresh peel of an orange or lemon.

* * * * *

— To Clean Black Felt Hats. —

A thorough rubbing with benzine will remove all dirt and grease from felt hats. They should be hung in the open air afterwards to remove the smell.

* * * * *

— To Mend Handles of Knives and Forks. —

Fill the hollow in the handle with powdered resin, make the iron stalk red-hot and thrust it into the handle, where it will remain firmly fixed when cooled.

* * * * *

— To Clean Paint Brushes. —

Soften them by soaking for 24 hours in raw linseed-oil, and rinse them out in hot turpentine, repeating the process till they are clean. Another method is to wash them in hot water and soda with soft soap.

* * * * *

— Remove Grease from Stone Steps. —

Pour boiling water in which soda is dissolved over the greasy marks; make a thin paste out of fullers earth and boiling water, and spread it over the grease marks; leave for twelve hours, and the grease will be absorbed. In the case of old marks, the process may have to be repeated more than once.

* * * * *

— Shaving Soap. —

Melt together 1½ oz. of almond oil and white wax, and add gradually 1½ oz. of Castille soap, which should be finely shredded. When all the ingredients are well amalgamated, pour the soap into pots or jars for use. Vaseline makes a very good shaving soap for tender skins and prevents irritation.

RATHER A CHILD.

Rather a child should pray for me
Than someone in a marble shrine,
For the words that lisp at a mother's
knee

Are so wonderously fair and fine
That the words go straight and the words
go far

With a power they have alone;
Go on and outward, past star and star,
Till they tremble unto the Throne.
Rather a child should lisp my name
In the darkness when comes the night
And to have it breathed while the candle
flame
Lends the altar a holy light.

For the still sweet voice of a child can
rise
On the mystical wings of love,
And cleave the darkness beyond the skies
To the listening ear above.
The bed-time prayer, the white, white
gown,

And the light that is low and dim,
The fair wee head that is bowing down,
And the message sent up to him,
Then you know somehow that the dear
child heart

Is anear to the things above.
For sighs that rack, and pains that smart,
A Gilthead Balm it brings.
Wonderful, too, the simple trust.

For the child in the boon it asks
Can rise us up from the dregs and dust
With a strength to renew our tasks,
For a child asks not as we older ones,
But asks with a heart that knows.
The hand that fashioned the farthest
suns

Lent the grace to the climbing rose.
Rather a child should pray for me
Than the godliest man on earth,
For the prayer made in the childish
key

Is the prayer of the greatest worth.
And I sometimes think that the good
God sees

How we trust—and has gravely smiled
At the simple words and the bended
knee
And the faith of a little child.

HOUSEHOLD HINTS

— Rusty Grates and Fireirons. —

They should be brushed over as thickly as possible with blacklead, and left to the following day. Then a stiff brush will remove both blacklead and rust, and polishing will be easy.

.....

— The Sewing Machine. —

When a machine works heavily, take out the cotton, and oil every part of the machine with paraffin, Work it thoroughly for a few minutes so that the paraffin may penetrate and expel all dirt and grit, and then wipe every part clean with a soft old duster. Next oil the machine with a proper lubricating oil— not with paraffin, for it heats the bearings and causes them to wear out. As a cleanser paraffin is most valuable to the machinists but it must be used for that purpose only.

.....

— To Clean a Sponge. —

Get a pennyworth of salts of lemon, dissolve it in a quart of hot (not boiling) water, and in it soak the sponge. When it is clean rinse it well.

.....

— Stained and Dusty Decanters. —

When a decanter or water-bottle becomes muddy looking from long use, rinse it with water; pour it out, and then put a handful of rough salt into the bottle and give it a good shaking. Soon the salt will become brown and sandy-looking and the glass clean. Rinse the bottle well with the cold water, and polish it with a cloth.

.....

— To Remove Iodine Stains. —

Dip the stain in liquid ammonia, and it will soon disappear. Afterwards rinse the article in cold water, and then wash with spoon.

We post the "Australian Gardener" direct for 3s. 6d. per annum.

WIT AND HUMOR.

— Too Personal. —

In one of the large cities a street-car collided with a milk-cart, and sent can after can of milk splashing into the street. Soon a large crowd gathered. A very short man coming up had to stand on tiptoe to see past a stout woman in front of him.

"Goodness!" he exclaimed. "What an awful waste!"

The stout woman turned round, and glared at the little man, and said, sternly — "Mind your own business!"

— Made a Miss. —

School Teacher (examining class—)
'What is the meaning of 'miss'?'

Small Boy (after few seconds' deep thought)—"Please mum, you're one."

Teacher—"Yes, but can't you give me a better answer than that?"

Boy—"A woman that canna get a man, mum."

Tableau

— Nasty. —

Dora: "I often wish Providence had made me a man."

Cora: "Perhaps he has—only you haven't found him."

— Exper Information. —

Johnnie (to new visitor)—"So you are my grandma, are you?"

Grandma—"Yes, Johnnie. I'm your grandma on your father's side."

Johnnie—"Well, you're on [the wrong side, you'll find that out."

— Expected a Story. —

A professor was entertaining a group of undergraduates at his residence one night and during a space of silence he took down and brandished a magnificent sword that hung over his fireplace.

"I shall never forget," he said, "the day I drew this blade for the first time."

"Where did you draw it, sir?" a freshman asked, respectfully.

"At a raffle," said the professor, solemnly.

— Not the Way She Meant. —

Linda—"Would your husband leave you much if he were to die?"

Florrie—"Not much more than now. He leaves me six nights out of the week as it is."

— Pocket Surprises. —

The son of an American farmer went to England to learn the agricultural methods of the country, but wherever he went he found it easier to teach than to learn.

"I've got an idea," he said one day to an old Yorkshire farmer, "for a new kind of fertilizer, which will be ten thousand times as effective as any that has ever been tried up to now. Condensed fertilizer, that's what it is, and enough for an acre of ground will go into one of my waistcoat pockets."

"Don't doubt it," said the veteran of the soil; "and, what's more, you'll be able to put the crop into the other pocket."

— Boy Sausages. —

The ever-burning question, "What shall we do with our boys?" seems to be satisfactorily answered in the following advertisement, which appears in the window of a butcher's shop; "Wanted, a respectable boy for beef sausages."

— One to the Recruit. —

He was the rawest of recruits, and the sergeant, who could not do anything with him, was out of all patience. At last the sergeant shouted. "I say, what is your head on for?"

"Why to keep my collar from slipping off," was the ready retort.

— What it Ran Him Into. —

Hinks: "Yes, I should like a motor-car, but they are too expensive. Now, what did that one run you into?"

Jinks: "Well, up to now, two bicycles, five dogs, four children, a haystack, six carts, and a lawsuit."

Tillie—"So you think love is like a photographic plate? Why?"

George—"Because it needs a dark room to develop it."

WILLIAM CARR,

Furniture Manufacturer
and Repairer,
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Carpets Cleaned and Relaid.

All work artistically and promptly executed.

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Charges moderate. A trial solicited.

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For Good Work and Up-to-date Photographs, which include

POST CARDS from 5s per doz.

PARIS PANELS, 15s per doz.

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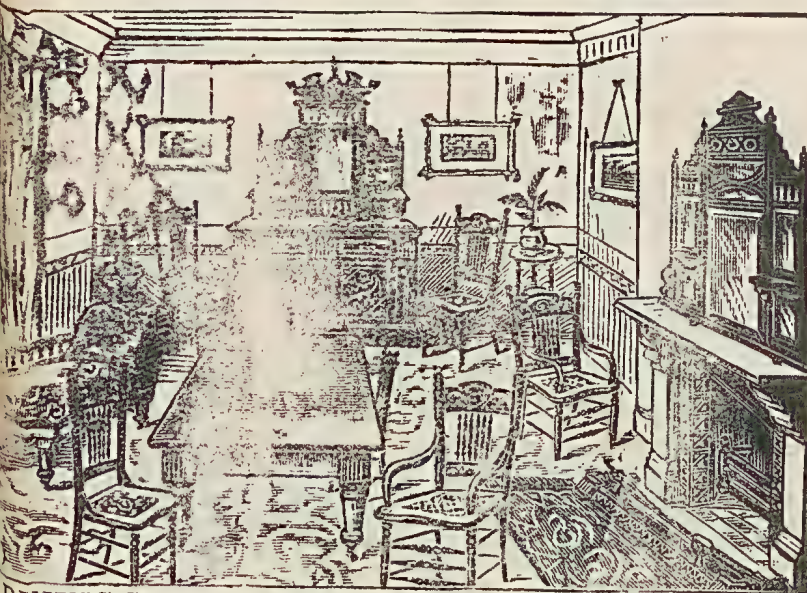
DIMOND BROS.,
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MALCOLM REID & CO.,

Furnishers, Drapers, Ironmongers,
BUNDLE STREET (next Foy & Gibson), ADELAIDE.

Write for our Illustrated Catalogue. Sent post free.

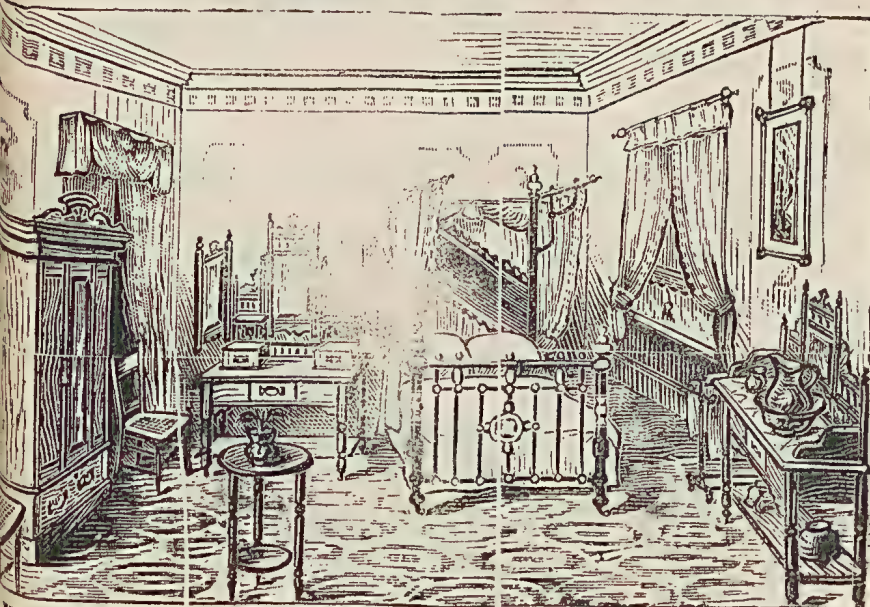
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 £12 to £300.



DINING ROOM Furnished as shown for £13 9s 6d.

DINING ROOM, Furnished as
 shown for £13 9s 6d,
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June Number of

1910

The Australian Gardener

(A Monthly Journal of Floriculture, Horticulture, Agriculture, and Poultry).

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ANSWERS TO CORRESPONDENTS**EDITORIAL.****The Flower Garden—**

Notes for the Month
 Bulbs in Bowls for Decoration
 Slugs and Snails

The Vegetable Garden—

Operations for the Month
 The Strawberry

The Orchard—

Notes for the Month
 South Australia's Woods and Forests
 Remarkable Profits of Fruit Growing
 The Effect of Grass on Trees
 Bees Aid Fruit Growers

The Farm—

Clean Water for Horses
 What a Horse would say if he could
 Speak
 Miscellaneous Items
 Cultivation of the Potato
 The Onion Eel-Worm

The Poultry Yard—

Poultry Foods and their Value
 Poultry Farming on Small Holdings
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ANSWERS TO QUERIES.—The queries sent us will be answered by men who know the subjects, but at the same time we shall be glad to receive answers to any published from readers who can give the information asked for. Our aim is to get our readers to help one another, and no one is better able to help a small gardener than another owner of a small garden who has gained experience in dealing with the many difficulties that have to be faced.

'Farner.'—Yes, the same treatment will do for English barley.

'Feeder.'—Lucerne hay and little grain will bring your flock through in good condition.

'Townie.'—We don't know whether it would pay you to grow your own potatoes. There would be no harm in trying.

'Bushman.'—Honey should be strained as it comes from the extractor, and afterwards skimmed, when any impurities come to the top. The honeycomb must be uncapped before it is extracted. Special knives are made for the purpose, and centrifugal vessels are made for extracting.

If you cannot obtain them locally write to any Brisbane firm that keeps bee-keepers' requisites.

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'Butter.'—1. Cream should be soured at a temperature of 65 deg. or 70 deg. Fahrenheit. 2. When cream is kept at a high temperature for a long time the butter will have an old flavour. 3. The time cream takes to churn depends upon five things—the ripeness of the cream, the temperature of the cream, the percentage of butterfat, and the length of time the cows have been milking, and the kind of feed the cows are being fed. It should take from 15 to 30 minutes to churn a batch of butter.

* * * * *

'A. Jackson.'—Having missed the autumn sowing for rape, it would be advisable to wait until September before sowing. You might get a crop if seeding were done now, but under ordinary conditions seed sown in September would catch up to June seed. You stand a better chance of getting a crop if oats are sown. Rape or thousand-headed kale will give you good summer feed for your sheep. In 'The Australasian' recently several references have been made to the cultivation of kale, based upon the experience of sheep-breeders.

* * * * *

Alice (Wallaroo).—Lucerne does not derive its name from the Swiss canton, Lucerne. The plant was cultivated in France, and also in England, before it was known there. Its first habitat was Central Asia. It is thought that the name lucerne was derived from the Spanish word uzerdas, which the French changed to la euzerdo, and later to luzerne, still later to lizerne, and then to lucerne. It was introduced into America by the Spanish, and was known as lucerne in the country before the name alfalfa was applied. The pronunciation of the word, according to the 'Century Dictionary,' is lu-cern, with the u sound open but light, as in 'education' and 'singular.'

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EDITORIAL.

Seasonable rains with alternating sunshine are the conditions which point to another beautiful harvest. Such conditions have been the order of the day and night during the past month, and not only the producer has a gladdened heart, but his happy prospects bring a sense of security to the consumer. The consumer, however, does not always quite realise the full faith of bountiful harvests and their consequent influx of wealth. A part of the whole truth which he is apt to overlook while congratulating his friend, the producer, is that under prosperous conditions the prices of commodities has an upward tendency. The truth is only borne in upon him from the domestic circle when the thrifty housewife finds that her allowance does not go quite so far as it should in comparison with lean years. There would appear a strange contradiction here. Ordinarily reasoning would point to the conclusion that when there are times of plenty common commodities should be cheaper. But the reverse is frequently the case. The consumer goes into the matter and really finds that his sovereign has not the purchasing power than it had under more adverse conditions. Why? Because the markets are not so completely governed by the balancing power of supply and demand. The demand is greater than the supply, not because there is not sufficient, but the producer is getting richer and because of his independence against the merchant and the storekeeper, he is able to hold his stocks and wait until his produce reaches a higher figure. The results are easy to follow. The merchant cannot obtain the produce at his own estimate of value, the storekeeper in his turn has to pay the merchant's consequent upon a limited supply, and the consumer has in his turn to meet the demand of the storekeeper's price for a limited article. Thus the producer holds the key to the situation, and in times of prosperity the consumer wonders why his sovereign has not the free value that it carries in times of adversity.

Rents are higher because landlords can

demand greater interest on their capital invested in houses, the butcher puts up the price of his meat because the grazier has more and better cattle and demands a heavier price for his beef, the sheep breeder can sell his fat lambs at a bigger price for export, the woolgrower gets a higher and more value for his wool and pays him better than killing for mutton, the wheatgrower has more grain and gets a better price for his wheat because of the quantity available in outside markets.

And so the business goes on. The producer every time demands the most he can get beyond the home markets.

Orchardists are the same as the field producers. All the best apples and pears are carefully graded and packed, not for local consumption, but for oversea markets. Hence the difficulty of obtaining first class fruit in the local market except at high figures. A fact which the housewife deplures, particularly in regard to apples, which are the best and most nourishing fruit that can serve the purposes of diet. As the oversea demands increases and gives the producer a regular and payable price for his goods, so the local supply is decreased and the price raised beyond the economic figure of the multitude who would otherwise benefit in consumption.

As this great law of supply and demand is the balancing power in economic commercial relationship between producer and consumer, so we consider the same great law in natural conditions which has so much to do with the business of primary production from the soil. Thinking in the very broadest and most liberal principles it must be understood that this balancing power is carried on in nature by plant life, being the sustaining agency or factor of insect life. In turn insect life sustains bird life. The logic of this is that if bird life is destroyed the usual insect outgrows or over balances itself on plant life and becomes a pest to the plant life. Man sees the destruction of his plant life which produces his particular food and his perforce has to set to work to protect his plant by destroying the insect pests, and thus has to take upon himself the work that would otherwise be done by bird life. It means so much more labour

for him and unprofitable at the best. The argument of it all is then, and the pity of it, too, that he has in the past been so careless of bird life to not only protect it, but in his blind folly to destroy it. The native birds were his feathered friends, but he steadfastly and stupidly refused to acknowledge it. Not only so, but to carry his foolishness to extremes he imported other birds from abroad which outgrew and outnumbered the native birds. Thus he added a double burden to his fast growing troubles by not only having to destroy the insects which became a pest, and which the imported birds would not destroy the native insects, but he has to set to work to destroy the birds which became a pest. And so on the producer has for years been adding additional worries and losses by his stupid shortsightedness in upsetting the balance of nature. Serves him right.

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Acacia Longifolia (Wattle).

The Flower Garden.

Notes for the Month.

Work in the garden for June is practically a continuation of last month. It is a good thing to remodel beds. The operation gives additional charm to the garden to lady gardeners particularly. Like the charm of a lady's drawing-room is chiefly found in shifting round the furniture and ornamentation, the same fancy extended to the front garden gives it a newness and pleasure. The operation may not necessarily be extensive or complete. A path narrowed here and widened there, with a

straight line or a curve introduced, a bed chopped off at the corners, or lengthened or widened according to position make a combination of effects that will be interesting and satisfying even if they are not really an improvement.

— Attention to Beds. —

The same argument applies to the contents of the beds. Generally speaking a number of old plants get a little ragged and unkempt. If these are cut out, or dug out altogether, and something new put in their place, the change will be greatly appreciated. However affectionate one may get towards a particular plant the re-

moval of it varies what may become a monotony, and this can wisely be put aside by shifting it to another place, and something equally pretty and fanciful substituted.

— Remodelling. —

If remodelling is undertaken opportunity should be made to thoroughly replenish the soil with manure and the leaf scrapings from the backyard which will have been heaped up, or better still, pitched into a pit. Cart it out in the wheelbarrow, and spread it over the beds with the manure and turn it all in with good depth of the spade. Give the top soil a nice raking to fine tilth and the result will be satisfactory.

— Planting Out. —

Perennials, biennials, and annuals can be planted out, and do not dab them in anyhow and anywhere. A little effort at designing a garden bed will give a hundred-fold satisfaction. Just bear in mind that some little seedlings will grow to two or three feet high when they are to bloom while others that are equally small as seedlings will not grow more than a few inches to their flowering height. Remember also the coloring of the blooms. Natural colors as a rule harmonise pretty easily it is true, but a little forethought will be of material assistance, and the result give more satisfaction.

— Get Your Nurseryman's Advice. —

In selecting your plants go to your nurseryman personally if you can. He will always be pleased to see you, and you will be surprised to find what a pleasant agreeable gentleman he is. He will tell you all you want to know, and a great deal more, for that matter. Amongst your choice of bulbs do not forget a few Tulips. Put them in a sheltered spot, and if you succeed in getting a good strain you will thank "The Australian Gardener" a hundred times for mentioning it. Lift all you can and divide the plants. This is the month to begin pruning Roses. One lesson from a practical man would greatly help amateurs.

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Striped Verbena.

Bulbs in Bowls For Decoration.

The bulbs of Hyacinths, Narcissi, Tulips and Irises may be grown quite well in bowls in prepared moss-fibre, no stone being required for the purpose. Formerly, however, the Chinese Joss Lily, which is a form of *Narcissus tazetta*, was grown in water in bowls, the bulbs being kept in position with stones. The moss-fibre is a much more useful and convenient article. Having purchased the bulbs and planted them in the ordinary way, leaving the point of the bulbs just visible at the surface, the fibre may be moistened if necessary, and the entire batch placed in a cellar or similar place where darkness prevails, together with, if possible, cool moist conditions. If these later are not present they should be created, as the good growth of the bulbs require it. About a month after planting, when rooting is in progress, a good watering should be given, particularly to Hyacinths and Narcissi, the others named requiring less,

though none of them should at any time lack root moisture.

All such as Hyacinths, Narcissi and Lily of the Valley revel in abundant supplies of water, and the roots of these things will quickly descend and coil around the base of the bowl where most moisture abounds. It is during the early stages of growth—say, the first five or six weeks—that the greater care is needed, and during that time, if the bulbs are packed away in a cellar, outhouse, large packing-case or frame where darkness and uniformly moist—not wet—conditions prevail, the requisite attention will be practically nil. When top growth, i.e., leaves and flower-spikes, begins to appear, the plant must be gradually brought out into the light, placing them, if possible in a frame or greenhouse where occasional damping may be afforded and where the atmospheric conditions are not dry or arid.

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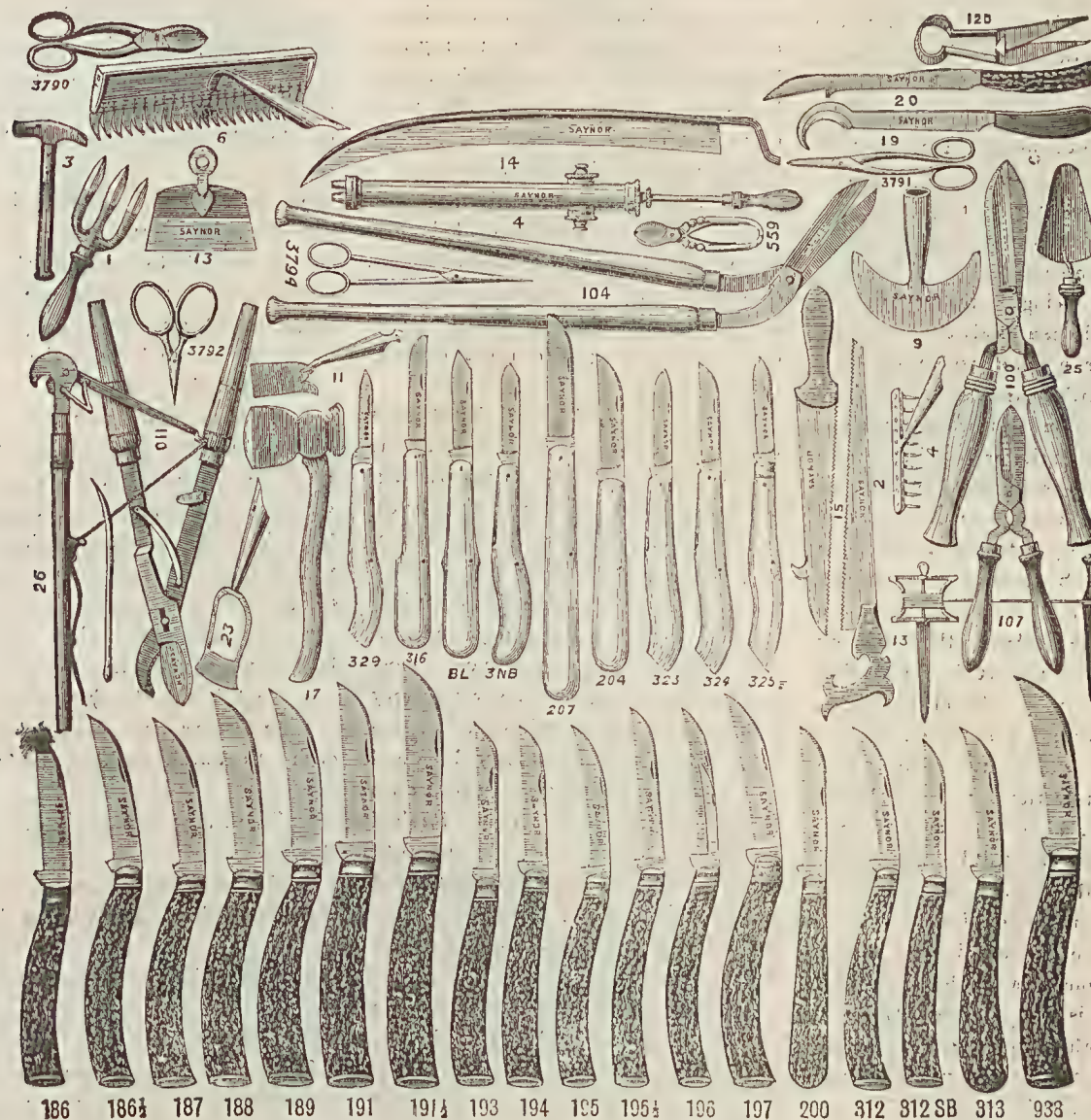
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Slugs and Snails.

By "Farmer Giles."

We all know slugs and snails, unfortunately. During the last five months they have so much increased all over the country that there have been cases of whole fields of cabbage and other plants having been completely destroyed by them. In allotments and gardens they have frequently been so numerous that it has been impossible to crop a crop of early peas and beans and even potatoes and flowering plants.

Fancy man being at the mercy of a thing which he can easily crush at any moment under his heel, and which cannot get away either as rats, for instance and sparrows. But so it is, nevertheless, for it is "the quantity as does it." With our usual carelessness in these matters, we have let them become so numerous that nothing but very determined action on our part will get them under again and save our crops from their slimy jaws.

Slugs have no shells like the snails, but are, nevertheless, protected. In the first place, they wear a kind of breastplate under their skin; and secondly, they are able to exude—sweat out—a slime which is a perfect protection against one dressing with lime, fairly good against three dressings. At the third dressing it is all over with the slug.

— Different Kinds of Slugs. —

The best-known—that is, the worst slug of the whole tribe—is the Grey Field Slug. There is not a garden or allotment of field where these slimy pests do not come out at night and "rasp up" the best plants with their teeth, which is set in a ribbon acting like a rasp.

They are double-sexed, and each slug lays 500 eggs in the season, from May till November. The eggs are of a milky colour, round and opaque—that is, not not transparent? They are usually found in batches of six to fifteen, in the earth or under rubbish. When they are hatched—at the end of three or four weeks—they are not longer than one-twelfth of an inch, but they begin at once to rasp up the food, picking out, of course, the choicest plants, and grow rapidly—at your expense.

Another slug, the Root-eating Slug, does itself well on your bulbs and roots during the night, and in the morning pulls down a leaf, which it takes along with it to its hiding place to serve as a provender and helping it to while away the time of day, for it seems to be eating twenty-four hours in the day. The large Black Slug leaves fields alone, and gives its attention exclusively to gardens and allotments—it is more particular in what it eats.

The Yellow Slug lives in the house—in cellars, sculleries and dairies. It has developed a fondness for meal and flour, eats enormous quantities and spoils more. In the dairy it lives on cream, and in the cellar on anything it can get down to bear drippings.

Of the snails, the large Garden Snail is the most common kind. Everyone knows her brown house with the pale zig-zag lines. Snails, too, are double-sexed, and lay a large number of eggs, about sixty to seventy to each heap. These eggs are round like slug eggs, but white and shiny, hatch in fifteen days and then the young snails grow—you can almost see them growing. The Strawberry Snail is only half an inch long, but does fearful damage in strawberry beds and violets. Iris and other garden plants are almost completely ruined by it. Its shell is dirty brown or reddish brown, with brown streaks, and a little white band round the last whorl. Like the others, it feeds at night, but comes out during the day after a rain.

The Small Banded Snail is a terrible pest in fields and gardens near the sea. At night they come out in vast numbers, attacking herbs and bushes *en masse* and doing great damage, in particular to wheat, mustard and other field crops.

— Natural Enemies of Slugs and Snails. —

Fortunately for us there are several birds who are very partial to slugs and snails, and devour, and at any time kill, enormous quantities. First among them is the thrush. In the war against these slimy pests we could not wish for a better ally, for thrushes are slug and snail killing all the day long. They break the shells of snails against stones, and then pick out the juicy owner of the house.

Blackbirds and starlings are also useful in destroying them. Toads are worth their weight in gold in an allotment or field, and the man who kills a toad ought not to be allowed to have a garden. Poultry and ducks are perhaps most useful of all, because, as is done in France, Germany, and elsewhere, they are fattened for the market by being used for clearing fields and gardens of slugs and snails. This is not only combining good business with pleasure, but doing double good business.

— To Get Rid of the Pests. —

Here is a list of things which you might do, and some of which you should do unless you don't mind the slugs and snails having half your crop.

1. Encourage the thrush. In Germany smallholders have nesting boxes especially built for thrushes. They cost a few pence and save pounds. If they take a little fruit afterwards it won't hurt you very much, and if you think it does you can easily keep them off.

2. Pen ducks and poultry on infested land wherever possible.

3. Don't kill the toads.

4. In gardens put down cabbage leaves or moist oatmeal. Both act as an effective trap.

5. Heavy applications of soot are a good thing to keep off snails.

6. Keep on picking them off from May until September. You will see the benefit next year.

7. A small but deep trench filled with lime or tar is a powerful protection against an invasion from slug and snail infested land, because it will trap every one of them that attempts to invade.

Rings of slaked lime put around any choice plants will keep both slugs and snails off.

Two years ago I saw a garden where there was not a single slug or snail, whilst two neighbouring market gardens were also eaten up by them. Slugs and snails are vermin of the garden and field. Every tramp began with only one louse or two. Lack of vigilance or indifference brought about over-population and much tribulation. Exactly the same applies to farmer's foes. Always keep a sharp lookout for them, and when you see them, kill.

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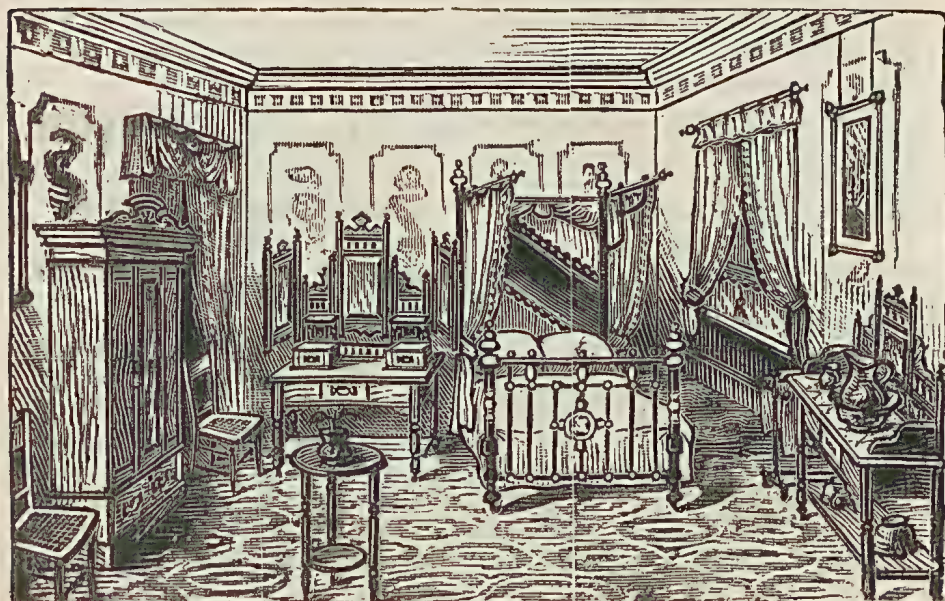
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Strawberry—"Sir Joseph Paxton."

THE STRAWBERRY.

There is no fruit which will return a greater income for time and money expended than the strawberry.

While good varieties are of a great importance to the grower, they are little better than poor kinds unless they receive proper cultivation, which is essential to success.

Be sure and see that the plants have plenty of water during the fruiting season. In our hotter districts a watering once in a fortnight would not be too much, but great care must be taken not to submerge the plant or berries.

Pistillate plants usually bear the largest fruit, but perfect blooming varieties must be planted close by for fertilisation and crops of fruit.

The soil should be stirred after every shower, when the beds are not mulched.

The best berry is that which possesses attractive appearance, good size and flavour, and is a good shipper.

In marketing fruit, see that it is packed neatly in chip-baskets, holding from 1 to 3 lb., or other neat packages.

When choosing varieties, always choose vigorous plants of such kinds as have been most productive in your particular locality, and which are as free as possible from disease.

Most growers find it profitable to fruit their beds for 2 or 3 years.

Failure to get a maximum crop frequently arises from improper fertilisation.

The culture is the same for berries for both home use and the market.

It would be well to give more attention to intense cultivation, as there are but few crops that offer greater inducements in this direction than the strawberry.

It is the remarkably early and remarkably large crops that return the greatest profit in strawberry culture.

Grading the fruit for market pays with strawberry as well as other crops.

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MAIN ROAD, MILLBROOK, 17 miles from city, Poultry and Pig Farm, 5 acres, wire netted, large shed, fruit trees 100 all sorts bearing 700 coming along, permanent water.

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HYDE PARK, beautiful situation, Villa, 7 rooms, bath, etc., 50 x 175, garden, trellis of vines, perfect order.

— £1,050 —

EAST ADELAIDE, Villa, 9 rooms, every convenience, large block.

— £1,000 —

HANDSOME RESIDENCE, 7 rooms, etc., 1½ miles G.P.O., City, trap shed, 115 x 180 ft., garden.

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NORTH ADELAIDE, close by Wellington Square, double front house, 4 rooms, shed, pay splendidly as an investment

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— £750 —

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ADELAIDE

THE STRAWBERRY.

By W. J. ALLEN.

(Continued from last issue.)

— Irrigation. —

It is impossible to grow strawberries to perfection without plenty of water. In some districts there may be sufficient rain to mature them properly, which is the best method, as the plants and berries do not come in contact with the water; but, I fear, few places in New South Wales are so blessed. When the soil becomes at all dry, the beds should receive a thorough good soaking, either by flooding or running water through furrows previously made for the purpose. If flooding is extended, the vine should be planted on slight ridges, so that the crown of the plant shall not be under the water for any length of time. On no account should the soil be allowed to become hard or cracked after applying water. If the surface is covered with a mulch this will keep the soil free; but if there is nothing in the bed, shallow cultivation must follow immediately the ground is dry enough for working. I would recommend keeping the beds covered with a mulch during the dry and fruiting seasons.

— Perfect and Imperfect Blooming Varieties. —

The blossoms of the strawberry are divided into two classes—1st, bisexual or perfect, and 2nd, pistillate or imperfect. The former contain stamens or male organs and pistils or female organs, hence are called bisexual or perfect; while the latter contain pistils or female organs only. It is, therefore, well for the beginner to ascertain which are perfect and which imperfect before planting, in order that his plantation may not be limited to imperfect kinds. Some seasons one row of a perfect blooming variety will furnish sufficient pollen for six or eight rows of imperfect bloomers, but it will not do so every season, and when it does not, small rough berries are produced. More than one variety should be planted in the field to furnish the pollen, and these should bloom at different seasons,

so that early, medium, and late varieties may be properly fertilised. It is well known that pistillate varieties when properly fertilised, yield the largest crops of fruit; but when varieties are planted as fertilisers, they should be of a kind producing berries of about the same size as do the imperfect blooming varieties.

To ensure a due proportion of plants bearing perfect blossoms, careful nurserymen usually select strawberry plants indiscriminately. Thus a purchaser may obtain among a selection of five vigorous rootlings some plants that appear to be inferior but are, nevertheless, necessary.

— Varieties. —

There are a great number of varieties of strawberries in cultivation. Most of them have some special point worthy of consideration, but it is only by experimenting, by selection and keeping in touch with what other growers are doing, that we are guided in deciding what varieties to grow. In choosing kinds for home use it is well to include a sufficient number to provide a succession throughout the season, and, therefore, as the fruit is not intended for market, the quality of firmness may be sacrificed to that of flavor. Fruit of regular form, medium to large sized and well colored, is always most sought after, whether for home use or market. A first-class strawberry should embody the following characteristics:—

Fruit large, of regular form and uniform, texture fine, flesh rich and firm, with a moderate amount of acid and with an aromatic flavor. A longitudinal cut should show no hollow space. The seeds should be deeply imbedded and the calyx set high so as to be easily detached. The plant should be hardy, vigorous, and strong, with perfect flowers, i.e., self-fertilising, a prolific bearer, with stalks of sufficient length to keep the fruit out of the dirt.

The following list comprises those varieties which at the present time are mostly grown for the best paying results:—

Aurle.—A Queensland strawberry, valuable for its extreme earliness, great productiveness, and robustness. It arrives

in Sydney early in July. The fruit is a great favourite in the Sydney market, not only for its size but for its delicious flavour. It is large, uneven, red in color, glossy, the plant healthy, roots long and abundant, penetrating the soil deeply and withstanding the drought well.

Annetta.—A Queensland variety, heavy and constant cropper, with plenty of foliage to protect the fruit.

Royal Sovereign.—An English variety belonging to the British Queen section. Fruit very large, oblong, conical; colour a bright, glossy scarlet, and ripens early. Flesh, firm, juicy, with a rich flavour similar to that of the British Queen. Plants strong and very prolific.

Captain.—One of the very hardiest varieties, and particularly good for dry districts; will withstand the drought when others fail. Fruit large, ovate and regular of splendid flavour. A very prolific bearer. Ripens early. Skin pale red, flesh pale, firm, with a brisk, pleasant flavour.

Noble (Laxton's). One of the largest strawberries in cultivation. Heavy cropper, but not good for shipping. Rather soft, and bruise.

Sunbeam.—A hardy plant; fruit of medium size and good flavour. Plants shade fruit well.

Melba.—Fruit large, brilliant red, and of the best flavour. It will bear good crops from beginning November to May. One of the most profitable to grow. Runners can be left, and start bearing as soon as rooted, making a solid bed.

Creswell's Seedling.—An excellent, hardy variety, free from disease. Good cropper.

Trollope's Victoria.—A recently introduced English variety, and one of the best. Fruit large, roundish, ovate and regular in outline; skin deep bright red; flesh pale red, tender, juicy, with a pleasant, slightly sub-acid flavor; plant vigorous, and bears freely and regularly, and can be depended on more than any other kind, as it will adapt itself well to various soils; it ripens early and comes in immediately after 'Edith' and 'Marguerite.'

Edith.—An excellent and very popular variety. The fruit is large, well colored and has a rich, pleasant, slightly sub-acid

flavor, plant strong, very hardy, and prolific, and can always be depended upon for a crop; can be grown successfully in most soils and situations, and comes in very early, the fruit of this variety being one of the first in the market.

Marguerite.—A well known and popular variety with very large conical or cocks-combe-shaped fruit which ripens very early; skin bright shining red, flesh white tinged with pink, firm, moderately juicy and sweet, but lacking a high flavor; plant robust, hardy, and bears freely. This is a favorite kind, on account of its earliness and also because the fruit, being firm, carries well.

Sir Joseph Paxton.—An excellent English variety, with large roundish berries; skin bright glossy red; firm rich, and highly flavored; plant strong and productive.

King Edward VII.—Result of systematic hybridizing of Royal Sovereign, and raiser claims to have produced a far superior berry; fruit extra large, deep vermilion, produced in bunches, well clear of the ground. Heavy and constant cropper, bearing from September to May; in fact, it is an almost all-the-year-round strawberry. Flesh pure white, delicious pineapple flavor. Cannot be too highly recommended.

Dr. Moree.—Raisers description:—'A splendid berry of the Creswell type, but larger, better flavoured, and a heavier cropper. Last Spring I counted over 200 formed berries (not counting blossoms) on one plant, and this same plant has fruited continuously ever since. This is not an exceptional case, but simply one of many plants in the bed which I marked for identification.'

— Picking and Marketing. —

The state of maturity at which strawberries can best be picked depends upon the market for which they are tended. Berries for local markets can be gathered in a much riper condition than fruit intended for shipping long distances. For Interstate markets strawberries must be gathered as soon as fully grown and colour well developed. The fruit is picked with stems on, into quart baskets or boxes, and carried to the packing shed

on trays holding from 6 to 12 quarts. Good pickers can do all the sorting and grading necessary as they gather the fruit. All small, inferior, and over-ripe berries should (under all circumstances) be rejected. Pickers can also face each basket, thereby increasing the attractiveness of the package. This is easily done while picking by placing the last layer of berries stem end down.

Berries should never be allowed to stand in the sun before being packed in the crates. The fruit should be gathered either in the early morning or in the cool of the evening, and not while heated with the sun. Care should be taken not to pick while damp, and the fruit should not be handled any more than is necessary, as, being tender, it is easily injured.

The practice of branding each crate of fruit with the grower's name, and the variety, in a neat design, is an excellent idea adopted by some growers. This is an inexpensive form of advertising, and helps to create a demand for a grower's product if his fruit is uniformly good and carefully picked.

— Diseases. —

Leaf blight, Rust, Sunburn, and Mildew are the most troublesome diseases with which we have to contend. The attacks of the fungus diseases appear at any time during the growing season, on the first symptom being the formation of small purple spots, which gradually increase in size until they are from an eighth to a quarter of an inch in diameter. These spots change to a clear reddish-brown, and become still lighter as the season advances, in some cases the entire leaf being so involved that it withers and falls off, thus denuding the plant of its foliage at the season when it is most required, and in many cases lessening the crop. The fungus is carried over winter by means of spores or by mycelia (representing the vegetative portion of the parasite). Some varieties are affected much more than others, and often to a greater extent on sandy than on clay loam.

Treatment.—Spray the plants with Bordeaux mixture as soon as they commence growing in the spring and follow this by a second spraying when the blossoms open. After the fruit is har-

vested remove and destroy all old foliage; then spray the new growth at intervals for three weeks until two or three applications have been made.

Mildew appears on the berries as well as on the surface of the leaves during the summer, the latter curling up and having the appearance of suffering from want of water. This disease, however, is rarely serious.

Treatment.—Sulphur if scattered over the leaves and between the plants, will generally suffice to keep this in check, the fumes given off under the action of the sun's rays having a prevention upon the growth of this fungus.

Strawberries are frequently attacked by minute flies, varying in colour from green to brown, black, and white. They appear at different seasons and cluster thickly on the plants, from which they extract the juice and close up the spores with excreta. A spraying with strong tobacco water, or soft soap and kerosene, will be found very effective.

If caterpillars are troublesome, which they sometimes are in the early part of summer, dust the plants frequently with finely powdered lime and soot. Soot is more lasting in its effects than lime. If weevils or beetles make their appearance, work the ground well, also dusting a little lime over the plants and ground.

—'Agricultural Gazette' of N.S.W.



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And at 146 Rundle Street



W. GILL,] Sugar Gums supplied by Forest Department and grown by Mr. H. Burford, [PHOTO
Spring Farm, Yacka, in 20 years.

South Australia's Woods and Forests.

South Australia was the first State of the Australian group that undertook the work of establishing State forests. When European settlement began in the new colony (says the 'Kadina and Wallaroo Times') there was such a superabundance of native timber everywhere that the early settlers were allowed to draw upon the supplies, without any restriction until it became apparent that the limit extent of natural forests would soon become exhausted. Largely owing to the influence of the late Mr. F. E. H. Kirchauff a member of the House Assembly, the South Australian Parliament was persuaded to call for reports on the best size of reserves for forest purposes, where they should be made, the best and most economical way of preserving the native timber on them,

and the planting and replanting the reserves as permanent State forests. Three years later a Forest Act was passed, which offered a bonus of £2 per acre of land on which forest trees were planted and maintained for a period five years. The practical results, however, of this offer proved disappointing, as little or no effort was made by land owners to earn the subsidy. In 1875 a Forest Board was appointed by Parliament and 195,398 acres were set apart for tree planting and conservation of the indigenous timber by natural regeneration where desirable. This board was subsequently abolished by the Woods and Forest Act of 1882, and the Woods and Forests Department was created in its place, with a Conservator of Forests at its head, under the control of the Commissioner of Crown Lands. The State forests reserves of the State cover an area of 157,066 acres, and vary in extent from small enclosures of less than a hundred acres to

areas of eight or ten thousand acres. These forests which are nearly forty in number, are distributed mostly through the settlement districts, from Mount Gambier in the south east to Mount Brown in the north. The management of the State forests, the value of which as a valuable and important asset is becoming more generally recognised, is in the hands of Mr. Walter Gill, F.L.S., F.R.H.S., who has occupied the position of Conservator of Forests since July 21 1899, and it is generally acknowledged that with the limited funds at his disposal he has done excellent work for the State. For the whole of the 33 years of the forests; history the expenditure has been £215,451, and the revenue £162,681. One of the most prominent features of the work of the department has been the free distribution of trees for the past 30 years. During that period, according to the latest official reports 7,266,000, trees have been given



W. GILL,]

Teams Carting Piles from Bundaleer Plantation.

[PHOTO

away to corporations, district councils and other public bodies, and to farmers and others, for the purpose of beautifying their residences, providing shelter for stock, and ornamenting the various towns. A fair amount of success has been attained in this way, and the beneficial results have been considerable. Mr. Gill has devoted a considerable amount of time and attention to the consideration of the suitability of South Australia for the growing of pine timber. To day 85 per cent. of the world's demand is for pine, and South Australia is sending out of the colony about £200,000, a year to buy pine timber, and with the expansion of the fruit industry this amount is likely to increase. After a series of experiments extending over a number of years it has been demonstrated beyond all shadow of doubt that in the State forests, the Remarkable pine, a native of California, can be grown with profit, and is admirably suited for box lumber, flooring boards and other purposes

of general utility. At the Wirrabara Forest, the Department has undertaken the work of case making and in the last annual report it is stated—'A steady demand continues for the cases manufactured at the mill at Wirrabara Forest, with satisfactory results to the revenue. The local requirements amounted to 5,050 cases, a few of which were used for butter, but the main bulk for exporting apples. Another contract was successfully carried out for supplying the Remark Fruit Packing Union with 11,000 28 lb. raisin boxes, and 10,000 56lb. raisin boxes, receipt of which was acknowledged by a letter from their agents Messrs G. Wood, Son & Co., conveying on their behalf their appreciation of the highly satisfactory manner in which the work was carried out, and expressing the desire that business relations might be maintained over many years.' The Conservator of Forests states that there are thousands of acres in the State suitable

for pine growing now carrying inferior timber of particularly no value or scrubby vegetation, and strongly advocates the planting of this land with Remarkable pine. He says 'it will pay well, given the requisite time and patience for development. It will pay in revenue but it will pay better in the healthy, strong men it rears amidst healthy forest conditions, in the increase of the producing power of the country, and in assisting to prevent the congestion of our population in our cities.' In addition to the attention which is being devoted to the growth of pine timber, considerable attention is also being devoted to the growth of hardwoods, and in view of the increasing demands for commercial timbers, the Government will be amply justified in increasing the vote to the Forestry Department in order that planting operations might be extended.

The best thing out an aching tooth,

The Orchard.

Notes for the Month.

— Planting. —

All planting should be completed as soon as possible.

— Pruning. —

Pruning is another important matter calling for attention, and should be commenced forthwith. This operation cannot be performed haphazard, requiring as it does, both theoretical and practical knowledge. Many instructive works on pruning are obtainable, those by local authorities being the most reliable for this country. With this information and a careful study and observation of the trees from day to day, from season to season, and from year to year, the grower should in time become skilful in this particular branch. The subject is so comprehensive, embracing all the intricate principles of plant physiology and plant growth, that it lies quite beyond the scope of a short article, and we can only confine ourselves to a few general remarks.

— What we Prune for. —

Let it be well understood that we prune to regulate the growth, to ensure the regular production of fruit, to keep up the vigor and vitality of the tree necessary to bring the fruit to perfection and to concentrate and direct the sap into a few important channels.

— Deciduous Trees. —

Deciduous trees that have been well trained from their infancy, and have been systematically summer pruned call for comparatively little winter pruning. Speaking generally, it is reduced to the regulating of spur growth, shortening or spurring shoots, removing any superfluous branches, and all dead wood. A well trained tree should be supplied with a sufficiency of closely set natural spurs borne on its lower portions.

— Pruning Neglected Trees. —

In the case of neglected trees the work is very much heavier. They usually carry far too much wood. The centre of the tree must always be kept open to allow the light and air free play through-

out its entire space. The branches should not stand closer than 1 ft. of each other at the very least; a distance of 2 ft. would be distinctly better. On such trees the fruit is only borne towards the extremities, or, in other words, only those portions where the light has had power to penetrate and to quicken the buds. The dense growth choking the centre has caused all else to become barren. The most important thing then is to reduce the number of branches very considerably and to encourage shoots and spurs to form nearer the base. To do this we must endeavour to arrest the sap in its ascent by checking the head growth and keeping the leading shoots light, and cause it to rest about the flush and lower limbs. Horizontal and dependent growth is to be preferred and encouraged in a strange tree for the same reason that the sap moving through them more slowly causes them to become fruitful. Wherever sap rests growth develops.

— Various Species. —

Every species of fruit tree, not to say every variety, calls for a different method of pruning, though the general principles are the same. The pear, apple, apricot, cherry, and plum have points in common, but the peach stands out distinct, in that it is not spur-pruned. It bears its fruit on the wood of the previous year; that is last season's shoots and natural spurs. Its shoots, therefore, are not shortened beyond a little tipping, when the variety is known to bear its fruit near the points. Our object in pruning the peach is to promote and provide for a succession of fruiting shoots removing altogether those which have already functioned that others may spring in their place. These shoots are readily produced with proper management. The other classes above named are spur-pruned; that is to say, suitable shoots are retained, and are converted into spurs by being shortened. It is never advisable to leave a long artificial spur, though greater length can be left at the base of the tree than towards the top, where it would tend to a woody growth.

— Promoting Natural Spur. —

A short, compact, natural spur springing from a strong source is always the

pruner's desideratum, and their promotion, formation, and management is the chief concern in a well-ordered, shapely, tree. Subjects like some varieties of the plum that have a tendency to form a superfluous number of upright branches with the inevitable result, a thicket of growth at the top, require a good deal of spacing and regulating of the shoots and branches. This by-the way, is summer work in the first instance, when we can remove with finger and thumb what must be sown and cut away with far more labor in subsequent winters. According to the strength or weakness of a tree must horizontal or perpendicular growth be encouraged. Only in the case of weakly trees, and where a certain design requires it, is the latter desirable. Cherry trees need little hard pruning, and they form of their own accord a sufficiency of fruit spurs. These spurs last for years, and go on extending and ramifying, so they must be pruned when they become too complicated, always taking care only to remove the exhausted growth, and to leave the fresh young growth that is to bear the fruit, preferably that situated nearest the source of the spur. This free development of spur and shoot in the cherry necessitates a certain amount of judicious thinning and regulating, and it is of the utmost importance with this class as with other fruit trees that all dead and useless matter be removed. Apricot trees require a spacing of their branches and leading shoots. They bear their fruit on natural and artificial spurs and occasionally shoots on last year's wood. The spurs must be regulated, and a sufficiency of well placed shoots converted into spurs.

— Pears, Apples, and Plums. —

Pears and apples are spur-pruned only, though their individual treatment necessarily differs slightly. This spur growth must also be regulated as it becomes exaggerated. Spacing the branches if crowded and thinning the shoots almost goes without saying. Some varieties of the plum having weaker wood than other trees, have to be favoured with a more perpendicular growth to render it profitable. It has natural and artificial spurs only.

— An Important Point. —

In all trees symmetry is an important point, both for appearance and economy's sake. A well-proportioned tree, in which all the growth is evenly disposed, alone will give the best results,

Remarkable Profits of Fruit Growing.

Startling figures of the profits made out of fruit growing have been published. A 200-acre orchard at Pakenham, Victoria, is credited with producing £16,000 annual profit. Another grower is said to have obtained £590 from one acre for six years, and many others are alleged to have easily cleared £200 an acre.

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The Effect of Grass on Trees.

The effect of grass on trees is probably intimately connected with that fundamental question in agriculture to which no comprehensive answer has yet been obtained—namely, the fertility of the soil. The casual observer may dismiss the subject by stating that it is simply due to the grass robbing the tree of its nourishment or its moisture, but such a statement can only be based on ignorance of the facts, and of all the work which has been done in the matter. The subject has been under investigation at the Woburn Experimental Fruit Farm for the last fifteen years; one report (the third) dealing with it was published in 1903, and it is hoped that another will be issued before very long.

Although no final solution of the problem has yet been obtained, considerable progress has been made in the matter, and various possible explanations have been definitely negatived. Foremost amongst these is the theory that the action is due to the grass absorbing all the food and water from the soil. The original experiments are, perhaps, the most striking, though not the most precise on this point. A large number of apple-trees were planted in rows, 11 ft. apart, in 1904; the ground in one row was kept tilled, and that in the other row laid down to grass; the grass, when cut, is left to rot on the ground, and the same amount of manure is given to both rows of trees. Those in the tilled soil are now such large trees that half of them have had to be removed, their spread being some 15 to 16 ft.; those in grass did not grow at all for several years, and only began to make growth when their roots extended beyond the grassed area; they are still miserable specimens of trees, about one-sixth the size of the others, and the crops borne by them have only been about one-tenth of that of their neighbours. Yet the grassed soil is actually richer than the tilled soil. In the fifteen years it has had removed from it only one crop of grass (that actually growing at any given moment) and the small amount of material required for the

stunted growth of the trees; whereas from the tilled soil there has been removed material from an annual crop of fruit, and also for the vigorous growth of the trees. Analysis also shows that the grassed soil is the richer of the two, and it also shows that, in this particular case, there is practically no difference between the water contents of the grassed and open plots.

Of the many other experiments on these points, the most conclusive are, perhaps, those made with apple-trees grown in pots. In some of these the grass roots were separated from the tree roots by very fine wire gauze, through which the former could not penetrate; the pots were weighed and watered every two days, so as to keep the water contents the same, and such water and food as was added was introduced from below, so that the tree should have the first pull at it. Yet the trees still suffered badly from the grass, although the soil was actually milder and richer than in the case of similar trees without grass. Corresponding experiments have been made with trees planted in the open. Though increase of moisture up to a certain point, and increase of food in certain cases, may benefit the trees, the benefit is much too small to do more than very slightly diminish the deleterious effect of the grass.

The behaviour of the tree in grass is clearly a case of starvation in a land of plenty, and this cannot be explained by supposing (tenable as such a supposition is for other reasons) that the grass roots suck up whatever nourishing solution there is in the soil, leaving none for the tree roots. The pot experiments, just quoted, effectively negative this. Nor can we explain the matter by supposing that the tree was only temporarily affected by the grass, but being in a weak state after transplanting this check resulted in its becoming permanently stunted; for a precisely similar, and even more marked effect has been proved to be produced by grassing over trees which have been established, in one case for four years, and in another case for twelve years; the effect, indeed, was so great that in the first instance, a similar result appears imminent.

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W. GILL,]

Plantation of Sugar Gums, 18 years old, Bundaleer.

[PHOTO.

Other explanations which suggested themselves have been investigated, and found equally unacceptable, these were differences in soil temperature, differences in aeration or proportion of carbon dioxide, and difference in the physical condition of the soil. The only other explanation which appears to be possible is that the growth of the grass results in the formation of some substance which is poisonous to the tree. This may be an active poison—a toxin—or the poisonous action may result from the alteration in the proportion of various substances present in the soil. An active poison may be produced in various ways, such as by the decomposition of the debris of the grass, actual excretion from the grass roots, or as a product of the bacteria present in the soil. As to the origin of the toxin no definite evidence has yet been obtained, but it has been found that toxins may be formed in soils by heat and other means, producing effects which are analogous in many respects with those

produced by grass on trees. Thus, on heating soil, substances are produced which are toxic towards the germination of seeds, and these have been found to be toxic towards plant growth also. That established plants which grow better in heated than in unheated soil, is due to the fact that heating causes a considerable increase in the soluble nitrogen present in the soil, and also in the composition of the bacterial flora of the soil. Moreover, the toxin formed as the result of heating the soil soon becomes oxidised and destroyed, allowing the favourable conditions to assert themselves. If, however, the toxin is present in sufficient quantity, it is not all destroyed before the plant grows, and its deleterious effect becomes apparent. It is noticeable that this effect varies greatly in different cases, and is very much less in the case of grasses than in that of the other plants which have been examined. Earth for grassed ground behaves in the same way as earth which have been slightly heated

and which contains only a limited amount of toxic matter, for trees planted in it (the grass being removed) do better than in soil taken from tilled ground, such toxic matter as there was present in it having evidently become destroyed before the tree started into growth; whether its presence originally in soil can be established by its effect on germinating seeds, still remains to be seen.

If the formation of the toxic substance is the explanation of the grass effect, we might naturally expect great variations in this effect in different soils; and this is certainly the case. At Ridgmont the effect is, perhaps, greater than in any other instance which has come under the writer's observation, but cases of very nearly the same intensity have been found in various parts of the Kingdom, whilst only one instance has been noticed where the grass had apparently had no effect. This variation in intensity with the nature of the soil is, probably, the chief reason why the action is not more widely recog-

nised; but two other causes contribute to an under-estimation of the grass effect. the one that it is very rare for a plantation to be partly grassed in such a way as to give satisfactory evidence as to the bad effect of this grassing; the other, that the grassing is generally effected gradually extending throughout several seasons, and in that case, it has been found, the effects are far less marked than they otherwise are, the trees, apparently, becoming gradually adopted to the altered conditions.

No definite connection has yet been found between the nature of the soil and the intensity of the action, but it does not appear to be governed by the richness of the soil. The case, alluded to above in which the action has been nil, cannot be explained by any greater depth of soil into which the tree roots penetrate, thus getting away from the grass roots for many of the trees have been lifted and all have been found to have their roots near the surface.—Spencer Pickering, 'Gardener's Chronicle,' 18th December, 1909.



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'The bee, like other insects, effects incidental pollination of flowers in its search for nectar: but its great value to the fruitgrower lies in this, that it goes to the flowers specifically to gather pollen, literally by the carload, in the hairy baskets on its legs, hastening from bloom to bloom, rolling and packing and literally rioting in the golden dust pregnant with the microscopic germs of plant life, until the golden pellets are packed away on its hair baskets, to be carried to the hive for storage as an indispensable portion of the food of its young during the winter months to come.

'It requires no expert knowledge to comprehend how perfectly the bee thus performs the office of pollination. Indeed, it is nature's chief agent in this indispensable work. No seed, no fruit, is the universal law. Here is the only insect useful in all its habits, having a fixed habitation accessible to man, dependent upon the pollen of every variety of flower as on indispensable portion of the food of its young, and going to the bloom specifically to gather that pollen, thus making possible the fruit crops.'

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About Vegetables.

The Kitchen Garden.

Operations for the Month.

— Seed Sowing. —

Seeds of any of the following may be sown during this month:—

American Cress
Asparagus
Broad Beans
Carrots
Cress
Endive
Java Radish
Kale
Leek
Lettuce
Mustard
Parsley
Parsnips
Peas (for late crop)
Radish
Rampion
Rape
Red Beet (Long and Turnip)
Sea Kale
Silver Beet
Spinach
Turnips

— Planting Out. —

The following may be planted out this month:—

Artichokes
Asparagus
Broccoli
Cabbage
Cauliflower
Endive
Herbs (various)
Leek
Lettuce
Onions
Potato Onions
Rhubarb
Sea Kale
Shallots
Tarragon
Tree Onion

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THE FARM.

Clean water for Horses.

In foods the horse is very particular. It sniffs and rejects deceptions very quickly, and if fastidious in foods it is equally so in drinks. It would almost rather die of thirst than drink unclean water. It only does so at the last resource and those who insist on being careless and putting impure water before it subject it to a great hardship. The horse is a healthy drinker; water is enjoyed as much as food, and is just as necessary to its well being, and it is quite as satisfactory to study its water supply as foods. If given a variety of foods, some valuable and others cheap, the former tainted and the latter sweet, the sound will be accepted rather than the tainted. It has often a choice of this sort, but in water it has none. This may be in the brook, pond, tank, or bucket. If it drinks and is satisfied well and good. If it refuses or indulges sparingly it has no further opportunity, and is bound to suffer. If a horse is given impure water and drinks a little, and then has some which is pure placed before it, its enjoyment cannot only be seen but almost felt by all who observe it. Surely this is the strongest indication of what is wanted, and that the greatest efforts should be made to supply it.

As a first step towards providing clean water the vessels in which it is offered should be of the cleanest. Buckets into which all sorts of stuff are put are never fit for the horse to drink out of. There should be drinking buckets for this alone and nothing else. Drinking tanks often become very dirty. Various buckets are dipped in and leave deposits. These may

sink to the bottom or swim on the top, but they are not relished on either part. How the horse often snorts and shakes his head if taken to a tank to drink where chaff and other materials are floating! Its aversion is a great object lesson, but it is often disregarded. Such tanks should be regularly and often cleaned out. It pays. When horses are kept in the stable for a day or more, as is sometimes the case, they are let out to drink. It is a little exercise and is good for them but if there is stale water in tanks or pools close at hand and a clear stream a little further off they will make straight for this and drink and then return quite contented.

What a Horse Would Say If He Could Speak.

Don't compel me to eat more salt than I want by mixing it with my chaff. I know better than any other animal how much I need.

Don't think because I go free under the whip I don't get tired. You would move up if under the whip.

Don't think that because I'm a horse that weeds won't hurt my hay.

Don't whip me when I get frightened along the road, and I will expect it next time and maybe make trouble.

Don't trot me up hill, for I have to carry you and the buggy and myself too. Try it yourself some time. Run up hill with a big load.

Don't keep my stable very dark, for when I go out into the dark my eyes are injured.

Don't say whoa unless you mean it. Teach me to stop at the word. It may check me if the lines break, and save a runaway or smash up.

Don't ask me to "back" with blinds on. I am afraid to.

Don't run me down a steep hill, for if anything should give way I might break your neck.

Don't put on my blind bridle so that it irritates my eyes, or so leave my forelock so that it will be in my eyes.

Don't be so careless of my harness as to find a great sore on me before you attend to it.

Don't forget the old book that is a friend of all the oppressed, that says:—"A merciful man is merciful to his beast."—"Farm Journal."

THE ONION EEL-WORM.

Experiments for the Eradication of—With a Short Description of its Life History and Habits.

[By W. Laidlaw, B.Sc., Micro-Biologist and C. A. Price, Microscopist, in the 'Vic Journal of Agriculture']

(Continued from last issue)

The almost complete failure of the chemical treatment to prevent or even check the attack of the nematodes was remarkable for it must be remembered that in some of the plots as many as 5,000 seeds had been sown, and it was confidently expected that at least some of the plants would escape, particularly in the earlier stages of their growth. Probably the majority were already diseased before showing above the surface.

That the seeds soon after its germination is attacked by the eel-worm can easily be demonstrated by sowing onion seed in pots filled with infected soil. If the germination of the young plants is carefully examined from day to day with the microscope, the worms can be seen attacking the young shoots and invading them, even in the earliest stages, and in some instances the worms have been detected in germinating seed itself.

Carbided lime Naphthaline and sand (a patent preparation), and calcium carbide, were used on some of the land adjacent to the plots. These substances were either drilled in along with seed, or spread along the furrows, so as to remain in close contact with the seed. Germination was interfered with by this method of application, and, besides, it did not prevent the ravages of the worms, all of the plants eventually dying off from disease.

A number of young plants, grown in

soil free from infection, were taken and transplanted, one lot being dipped in a solution of lead arsenate, the other being untreated. They were then planted out in an infected area. In a little over a week all the plants treated with the lead arsenate had died off, probably owing to the solution being too concentrated. The untreated plants did not show any evidence of attack by the eel-worm.

Our experiments show that onions transplanted from a sterile seed bed are not liable to attack by nematodes, unless the bulb be injured in the process of transplanting or by other agencies.

— Method of Detecting the Eggs of Nematodes in the Soil. —

It is extremely difficult to detect the eel-worms or their eggs in the soil, more especially is this the case in the black soils of the Drysdale district. Hundreds of micro slides prepared for this soil may be examined without detecting the presence of either the nematodes or their eggs. Owing to the great amount of labour entailed by the above method of examination, it was necessary to have recourse to one which would reveal their presence in a quick and satisfactory manner.

The process adopted by Dr. Cobb of washing the nematodes out of the soil, by mixing with water, and pouring back and forth from one dish to another, allowing the mixture of earth and water to stand until the organisms have settled, then pouring off the muddy water, was found to be unsuitable when dealing with the black soils.

Our first experiments for the detection of the nematodes in the soil was carried out somewhat on bacteriological lines. Boiled onions were taken and the pulp inoculated with small quantities of the affected soil. After an interval of twelve days, an examination of the pulp showed the presence of numerous embryo eel-worms, while the uninoculated pulp remained sterile. The latest method adopted by us is on similar lines. A quantity of soil taken from infested land is placed in a small glass jar, the soil moistened with sterile water, and strips of onion leaf free from nematodes laid on the surface, and examined at intervals of

a few days. After a period ranging from seven days to a fortnight, the eggs of the eel-worm, if present in the soil, will have hatched out in the vicinity of the leaf. All that is necessary then is to take a small fragment of the leaf, place it in a watch glass with a little water and examine it under the microscope when the young worms can be seen in active movement. It is even possible to detect them by the aid of a good pocket lens. This method was found to give positive results in all cases when affected soil was submitted to examination.

Samples of soil taken from infested land at a depth of 4, 8, 12, and 14 inches, were all submitted to the above method of examination, and in every case with positive results. This shows that deep ploughing which turns the soil exactly bottom side up, the use of skim coulter to remove the upper layer of the soil, the burning of straw or brushwood on the surface, and even the use of chemicals will have little or no effect on land where the soil is liable to crack, thus allowing the eggs and embryos to be washed by rain storms, or blown by the wind into the deeper layers of the soil.

Of the constituents of the soil, none probably are more likely to be moved from place to place than minute organisms, such as the eggs and larvae, of nematodes by the action of currents of water on or beneath the surface. It has long been known that drainage has an important bearing on the spread of nematodes. Wind animals, in fact anything that moves either in or upon the soil, will act as agents in disseminating the disease.—(Cobb.)

(To be continued)

Cultivation of the Potato

By the Editor of the 'Queensland Agricultural Journal.'

(Continued from last issue.)

— Potato Scab. —

This disease, characterized by the presence of scurvy or scab-like patches on the skin of the potato, is very prevalent during certain seasons; and, although the edible portion of the potato is not injured, the market value is much depre-

ciated. There is also another form of scab superficially resembling the one described, caused by an organism called *Oospora scabies*. The disease is prevented in both cases by steeping seed potatoes for two hours in half a pint of formalin mixed with 15 gallons of water.

Another remedy is said to be efficacious and that is, to dissolve 2oz. of corrosive sublimate in 16 gallons of water; when fully dissolved, put the seed potatoes in a bag and immerse them in the mixture, not leaving them to soak, but only long enough to ensure that all the seed is thoroughly wetted. Corrosive sublimate is highly poisonous, and must be handled carefully, a wooden vessel being used to dissolve it in. A potato affection was, in 1896, brought under the notice of the Queensland Department of Agriculture as occurring in the Granzow and Alberton districts of Beenleigh, and it was found to be identical with the new disease of the potato plant whose nature and cause were first made known in 1894 by Mr. Henry Tryon, Government Entomologist. The disease was probably brought into the Beenleigh district many years since in seed potatoes.

The symptoms of the disease are as follows:—

When the potato plant is in process of vigorous growth, and exhibits every evidence of health, it suddenly commences to droop as if lacking moisture; after a few hours it generally becomes flaccid, its branches bend downwards, and its leaves have their edges turned inwards so as to expose their under surfaces. These events happen in a few hours, and the plant thus smitten never revives; but gradually succumbs. On examination, the roots and tubers will be found, to all appearances, perfectly sound. But careful examination reveals a faint, ring-shaped line, which is seen on the section of a healthy tuber at a short distance within and parallel to the surface. This ring of the healthy tuber is more evident than usual from having become darkened in color. Later on, an opaque, thick, white, tenacious fluid exudes in minute quantity from the eyes of the tuber, and it is this which causes the earth to strongly adhere to these points when the

tuber is taken from the ground and permitted to dry. If kept perfectly dry the tuber usually undergoes no destructive changes; but if left in the soil or placed in a damp atmosphere, destructive changes occur, and eventually the whole potato becomes a mere mass of corruption

— Treatment. —

As soon as the disease is recognised every part of the affected plants should be removed, leaving not a particle behind. Then the ground should be opened up and lime applied to kill the plant-microbe. Once the disease has shown itself, potatoes should not be again planted for the succeeding crop on the same land, but two or more crops of, say, maize or brown millet, should be taken off. It should be noted that no plants of the same order should be planted on the infected ground, especially not tomatoes.

(To be Continued.)

Miscellaneous Items.

A turnip given to each horse once a day helps to put a shine on the coat.

* * * * *

Plenty of food and a dry bed are the first requirements of strong, healthy lambs.

* * * * *

It is always best to graze sheep by themselves, for neither horses or cattle may be reckoned as doing their best when grazing with sheep.

* * * * *

Inexperienced feeders have sold lambs supposed to be fat, which more experienced feeders purchased and finished, and thereby reaped the bigger profit.

* * * * *

It is difficult to name the right quantity to give a horse. Some animals can do with more than others, and some can take more at certain times than at other times.

* * * * *

In a test to determine the amount of salt consumed by a sheep it was found that each animal ate from 15 lb. to 19 lb. a year, or for a flock of 100 ewes it was 1500 lb. to 2000 lb.

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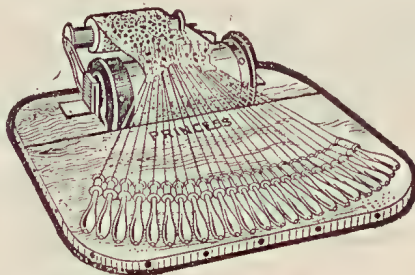
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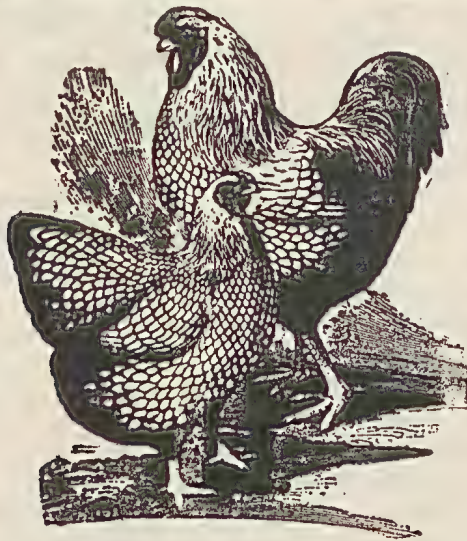
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❖ ❖ The Poultry Yard. ❖ ❖

Poultry Foods and Their Value.

In dealing with the question of poultry foods and their value it is necessary to draw a distinction between what are termed, for the sake of convenience, natural and artificial. The former are those that fowls are able to obtain in a wild state, such as worms, grubs, seeds, insects, etc., while the latter are those that are provided for them, such as the many cultivated grains and the meals made therefrom.

There is no doubt whatever that the former are preferable for several reasons; they are certainly less expensive, and fowls seem to thrive upon them rather better than they do upon artificials, but perhaps this latter advantage is more a result of the labour and exercise that have to be expended by the fowls in obtaining their own food. In this article it is the artificial foods that I want to deal with—those which birds in a natural state would be unable to procure—since they are the ones upon which the smallholder has to depend to a very great extent.

— The Best Grains. —

Taking its feeding value as well as its

price into consideration, there is no better grain for poultry than wheat. It is an excellent all round food, being suitable at most seasons of the year and under nearly all conditions, besides which fowls are extremely fond of it, eating it in preference to other grains. Its somewhat high price during the last twelve months has been unfortunate from the poultry-keeper's point of view, but, notwithstanding this fact, it is still an economical food.

Barley has excellent feeding properties, but its hard husk makes it difficult to digest, and there is sometimes a certain amount of difficulty in persuading fowls to eat it at all readily. Containing a fairly large share of carbo-hydrates, it is really of more value during the winter months. Care is required in purchasing it since many inferior samples are offered for sale. Oats are extremely well balanced, containing a fair percentage of the three essential elements. Only well-filled oats are of any service, since the small thin grains consist almost entirely of husk. It is an excellent plan to steep the grains in water for a few hours previous to feeding, and in this manner they are rendered more palatable and easier of digestion.

— The Use of Maize. —

Maize requires to be used very care-

fully indeed, for when fed in large quantities it impairs the health, reduces the vitality, and causes the birds to become very fat. There are only two occasions when I recommend the use of maize for poultry, namely, to sitting hens and during a spell of very cold weather. Maize is extremely strong in the heat-forming element, carbo-hydrates, and thus goes to the production of fat rather than eggs or flesh. The appearance of a maize-fed bird is probably familiar to many readers; the carcass is entirely coated with a layer of oily, greasy fat, useless as a food, and harmful to the bird. Cooked maize, under certain conditions, is a suitable food, but in a raw state it requires to be employed very carefully indeed.

— The Smaller Grains. —

There are many of the smaller grains that are really only suitable for use in a dry chick mixture. Canary seed, hemp seed, buckwheat, millet, and dari are the ones most commonly employed.

Canary seed is rather expensive, and is therefore only used during the first month of a chicken's life; after this time less expensive grains are substituted.

Buckwheat enjoys great popularity among the poultry keepers on the Continent, and there is no doubt but that it is a capital grain for all kinds of poultry, especially turkeys. It is not very easy to obtain in this country: but when a good sample can be procured cheaply its use is recommended.

Rice is extensively used by the "dnckers" and is regarded as the finest food there is for fattening purposes. It is, however, almost useless as a food in a raw state, since it is very indigestible and badly balanced. For cooking purposes purposes the common chicken or Burmah rice should be used. A small quantity is advocated in the formation of a dry chick mixture in order to balance some of the richer grains.

— Some Useful Meals. —

Middlings (also known as toppings, pollards, sharps, seconds, thirds, and dari) is a very valuable meal, and is used extensively for feeding poultry. It is really wheatmeal, that is, it is half-way between

flour and bran. It is a little deficient in carbo-hydrates, and thus used in conjunction with barley meal, which is strong in this element, it forms a well balanced ration. During the summer months the proportion of middlings should be increased; during the cold weather the barley meal.

Barley meal is one of the most useful meals we have, and it is not used so extensively as it might be with advantage. Considering its feeding value, it is by no means an expensive food—in fact, it is considerably cheaper than its actual price would seem to indicate. It is a really well-balanced meal, but contains a fairly slight excess of carbo-hydrates, and is thus rather more suitable during the winter months.

What applies to maize applies also to maize meal as to the whole grain, being very rich in carbo-hydrates, it requires careful using. Bean and pea meal contain an excess of albuminoids, and are not recommended, save in very small quantities, mixed with other meals. Bran is a very bulky food, and contains little nutriment.

POULTRY FARMING ON SMALL HOLDINGS.

(Continued from last issue.)

GRIT BOX.—Every fowl requires some form of grit for the gizzard's proper work. Fowls have no teeth, and their only means of grinding is done in the gizzard by means of grit, say sharp pieces of broken earthenware, smashed to the size of a pea, or half the size of a maize. This form of grit is that most relished, and I have known birds to leave quarts until they have exhausted all the earthenware. Oyster shell, broken into small pieces, may also be given to assist shell making, but it is not hard enough to serve the double purpose.

DRINKING VESSEL.—Many make the mistake of using open receptacles, such as an old saucepan or cracked dish, filling it up once a week, and allowing it to be

exposed to the sun's rays. This is a serious mistake. Should a touch of disease appear on the farm, the bird affected naturally drinks a lot, and in so doing leaves the germs of disease behind for the others which follow, and so disease is spread broadcast. The scalding of the tins is very essential. No disease spreads so rapidly as by means of infected water. Keep the water cool and absolutely pure.

A cheap water vessel can be made out of a kerosene tin, cut from the front, half way down on both sides, and cut across the centre of the tin. Raise the piece of tin slightly. It will not only form a shade to the water, but also more important still, it prevents the fowls' feet from getting into the water, and thereby forms another safeguard against disease germs.

Keep a rusty horseshoe in the water, and occasionally add 80 drops of sulphuric acid to each gallon. Once a month add a packet of Epsom salts to each half gallon of water. The colour of the comb should be observed; the whitish red, the blackish purple, or the very pale comb denotes something radically wrong. A bright, healthy, appearance is desired.

(To be Continued.)

For small crofts or holdings, or even cottages, the greatest profit will come from a carefully selected stock of a single pure breed.



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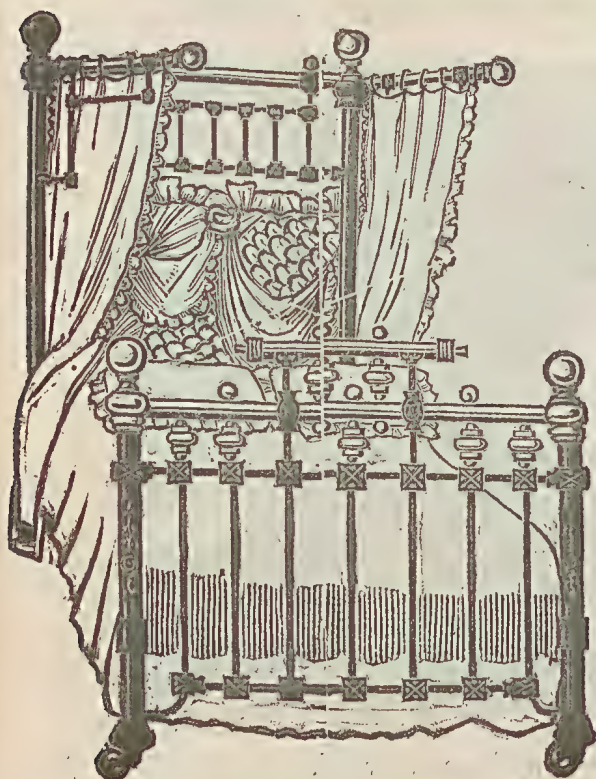
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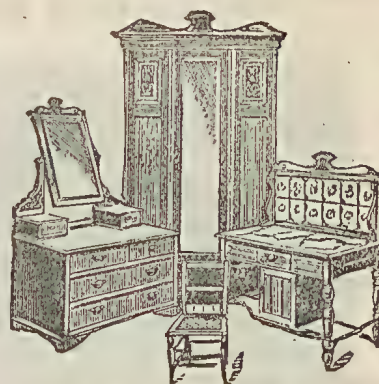
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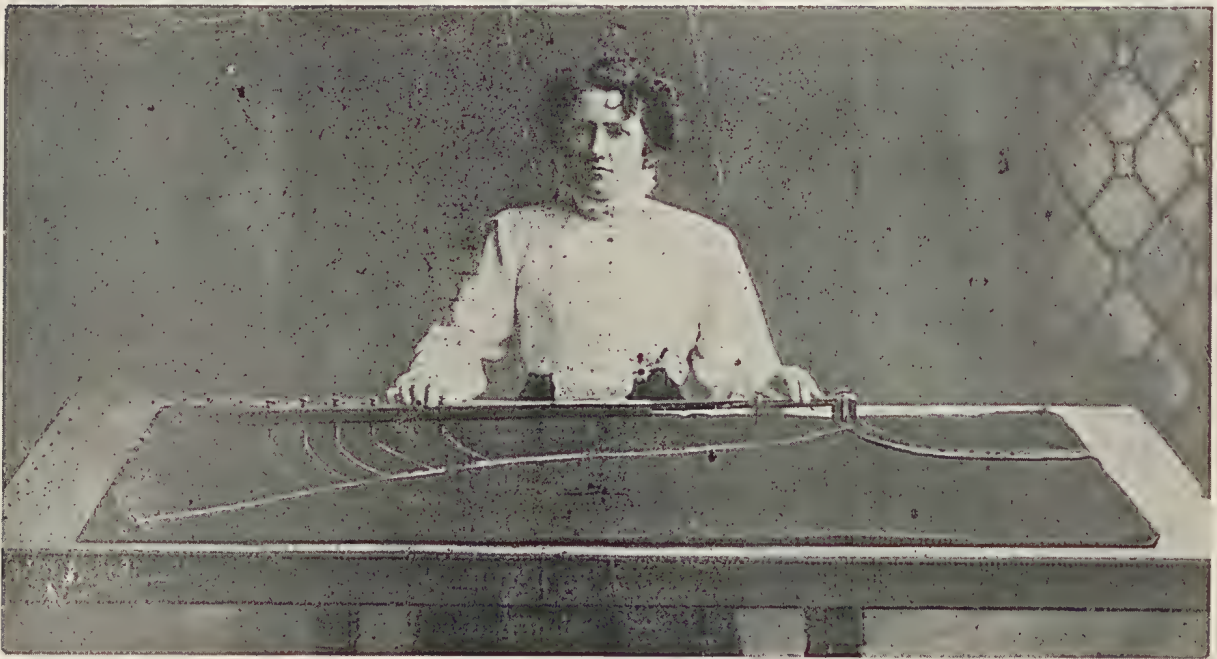
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For the Home.

Tips to Men.

— Discoloured Knife Blades. —

Discoloured knife blades will become bright at once if rubbed with a cut raw potato dipped in brickdust or other knife powder.

— To Cut Glass. —

A steel tool dipped in turpentine in which camphor has been melted will cut glass. A watch spring well moistened with this solution can be used to saw glass.

— For Leather Boots. —

A little castor oil rubbed on to leather boots will soften and prevent them from cracking. If applied at regular intervals of a month or so, it will much prolong their wear.

— Plants. —

Plants will grow more quickly if a few drops of ammonia be added once a week to the water with which they are watered. The water should be lukewarm, not colder than the atmosphere of the room, and the leaves of the plants should be kept free from dust by being sponged or syringed.

— For China. —

A good cement for china is made of equal parts of fine glue, white lead, and white of egg, well mixed together. See that the edges of the broken article are clean, apply the mixture to them, and press the edges firmly together. Any superfluous cement that is squeezed out beyond the join may be scraped off when it has hardened.

— Stones of a Yard. —

The stones of a yard and doorsteps frequently have a greenish look, which is very unsightly. In order to remove this greenness, wash the stones with the following preparation: Half a pound of soda and a quarter of a pound of chloride of lime in a quart of boiling water. The greenness will speedily disappear.

HOUSEHOLD HINTS

— To Wash Coloured Print Dresses. —

Soak them in strong salt and water for an hour before washing, in order to set the colours.

— To Keep the Cheese from Moulding. —

Rub the cut part with butter, and cover with white paper. Above all, keep the cheese dry.

— To Clean Greasy Cake Tins, etc. —

Scrub them well with hot soda water, and then scour them with a soapy flannel dipped in silver sand.

— To Clean Lamp Chimneys. —

Clean lamp chimneys by holding them over the steam of a kettle, and then polish with a clean soft rag, or a piece of newspaper.

— A Gardening Apron. —

A useful apron for gardening may be made out of an old waterproof cloak. This should always be worn when watering the garden, in order to keep the dress clean.

— To Remedy a Leaking Cask. —

To stop a leak in a cask, beat some whitening up with common yellow soap. If this mixture is well rubbed into the leak it will be found to stop it after everything else has failed.

— To Make Alum Water. —

Two ounces of alum dissolved in one gallon of water is excellent for rinsing muslin curtains and muslin hangings, also children's frocks and pinafores. It renders it non-inflammable.

— To keep Tins Bright. —

Clean the tins with soap and whiting rubbed on with a piece of flannel. Wipe them with a soft, dry, and clean cloth; then polish them with a leather and a little dry whiting. Take care that the cloth and the leather are both free from grease.

— Ironing Handkerchiefs. —

When ironing handkerchiefs begin ironing in the middle. Ironing the edges first causes the middle to swell out, and makes it very difficult to iron and fold them properly. Test the iron on a piece of rag or paper to prevent any accident by scorching.

My Ship of Love.

I launched a fleet of many ships,
One was for wealth and one for fame,
And one for knowledge far above
The wisest ken—I wrote the name
About each prow—and one for love,
The smallest of my many ships.

I launched them on the wide, wide deep,
With many hopes and many fears,
As when a mother heart gives forth
The youngest of her failing years,
To the wild hurture of the north,
I launched them on the wide, wide deep

My ship of fame returned no more,
Tho' strong the oak and stout the sail,
With finely interwoven strand;
It must have perished in the gale,
Or foundered in the sight of land,
My ship of fame returned no more.

My ship of wealth came empty home,
My ship of knowledge brought me not
Such treasure as I sought to get
And heap upon my shelves—but what
Stirred all my soul to vain regret,
My ship of wealth came empty home,

Only my ship of love came filled,
Tho' launched the last and least
esteemed;
It brought me more than all the gold
I lost, more riches than I dreamed
My arms could compass in their hold,
My only ship of love came filled.

Oh, if my ship of love had sunk,
And all the rest came laden back
From islands far beyond the main,
Where points the golden moonbeam's
track,
I should be poor for all my gain:
Thank God my love ship has not sunk.

H.E.W.

The Young Folks.

In the Looking-Glass.

A STORY ABOUT A BABY ROBIN WHO LOST HIS TEMPER.

"Trit—trit—tritty-trit," chirped Mr Robin Redbreast to his five little chicks. He was very proud of them, and he and Mrs Redbreast had brought them up in such a funny place—where do you think? Why, among some books in a little's bed-room.

The books were on some shelves, nailed up on the wall beside the window, and when Mr. Robin had been nest-hunting he saw the open window, flew in, and finding a nice little space between some books, flew away again to fetch his wife and see what she thought about it.

Mrs. Redbreast thought it was a splendid place for a nest, so they decided to stay there, and there the five wee birds were born.

One day, when the baby birds were a little older, Mr. and Mrs. Redbreast went off for a little outing by themselves, leaving their chicks safely in their nest.

Directly their mother and father had gone, Dick, the eldest chick, scrambled out and after trying his wings by flying to a chair just below the nest, he suddenly found that he could go farther still, so boldly stretching his wings, he reached a dressing-table on the other side of the room.

He was proud of himself, and presently he began to hop about the table, looking inquisitively at the things lying about.

"Hello! Here's a nice hole leading to another room," he thought, and he hopped nearer, its furnished just like this room, too he said. How funny to have two rooms exactly alike.

But just as Dick got to the entrance of the other room, another cheeky robin hopped up.

Well you're a pert fellow, said Dick, with his little head on one side.

And—would you believe it!—that other impudent bird put his head on one side just at the same minute, and looked back

in a very cheeky way at Dick, who gave an impatient hop to one side to get out of the strangers way.

But now he began to get really angry for the stranger would not let him get out of the way, and hopped in exactly the same direction, and placed himself in front of Dick.

Well, either you move or I move, said Dick crossly. I don't want to stand here playing games with you all day. I want to get into that room.

But the stranger never moved, until Dick gave an impatient hop backwards when, to his astonishment, the stranger went back too.

At this Dick really lost his temper, and gave an angry hop forward again, ready to chase the annoying stranger, who did not seem to want to go anywhere himself and yet would not let Dick go where he wanted to.

Now, our brave little bird meant to frighten the other, but, to his astonishment, little Mr. Stranger hopped forward to meet him, and this so angered Dick that he flew at him with a savage peck.

But—co-oo-oh! What ever had happened? For a second or two Dick felt as though he had broken his beak, for it had struck something horridly hard, and he was just going to try again, because he was now in a regular passion, partly because of the annoying stranger, and partly because with the pain, when his father suddenly returned. When he saw his angry little son, he flew over to see what was the matter.

And just at that very moment, the other bird's father came back, too, and both fathers, to Dick's great indignation, looked as though it was all a joke.

'Why, Dick, my boy,' said Mr. Redbreast, 'What have you been doing?'

'Father I wish you'd send that impudent fellow away,' said Dick, 'look at him staring at me as —'

'Why, exactly as you are staring at him, my boy. Didn't you know that's yourself?'

'Myself?'

'Yes; you're in front of a looking-glass, which gives back a picture of you, and of this room, too.'

Poor, Dick hung his head and said nothing, but he felt very foolish as he hopped quietly back to his nest. Next day, however he had cheered up again, and set off in search of further adventures though afterwards he was very careful about picking a quarrel with strangers.

Polly.

Our Polly was a Berkshire pig
Of famous pedigree,
And having been brought up by hand,
Was gentle as could be.
She followed Minnie in her walks.
When to the fields she went,
Or lay beside the pasture bars,
And grunted with content.

But one sad day no polly came
To get her morning meal—
Though Minnie called her loud and long;
She gave no answering squeal.
And Minnie mourned her favorite
With many a sob and sigh,
And sadly turned her gaze away
From Polly's empty sty.

At last, one day, when spring-time
flowers
Were blooming on the glade,
When wild carnations, like a flame
Lit up the woodland shade;
When first the catbird and the thrush
Their matin song began,
And dewdrops nestled on the grass,
And sparkled in the sun.

Through grassy uplands Minnie went,
And through the forest shade—
The pansies grew so thickly there,
They purpled all the glade.
She gathered clumps of woodland pinks,
And dandelions gay,
When suddenly she heard a grunt,
Not very far away.

She dropped the blossoms that she had
What could the grunting be?
It sounded so like Polly's voice,
She quickly turned to see.
She searched about, and soon she spied,
A bed of leaves and twigs;
And there lay Polly, cuddling up
Six little spotted pigs!



Dogs are better judges of men than men are of dogs.

If a man is incompetent, he charges it to hard luck.

It's the most promising young man that gets into debt.

A smart baby is one that does its sleeping during the night.

The bride is given away at the altar, and occasionally the groom issold.

A headache the morning after is responsible for many a good resolution.

Some liars are so interesting that we are sorry when we can't believe them.

The man who has nothing to sell generally has a stock of advice to give away.

A sure way to be robbed of your good name is to place it on your umbrella.

Kisses may now be sent by wire, but it is more satisfactory to go yourself.

Generally the most bitter medicine is the best. It is the same with experience.

It isn't necessary to pump some people in order to get out of them all they know.

Many claim to be fond of poetry, but we never see a volume with the cover worn off.

When a boy comes from his first year at college, he is ashamed of the ignorance of his parents.

A good reason why so many are not so wicked as others is because they don't have as good a chance.

Many are so attached to their home that rather than give it up they spike it down with a mortgage.

Costa Rica is said to be the married man's paradise. There isn't a millinery store in all of that country.

Some men are poor because they are honest and others are honest because they are rich and can afford to be.

There is one good thing about widow's weeds—they rarely interfere with the growth of orange blossoms on the same hill.

A new husband should listen to his wife and do as he thinks best until they get well acquainted, and find out which is the "boss."

When a man makes up his mind never to run anymore to catch a train, he has taken the first step towards becoming a philosopher.

The first hard work a boy does is to smoke.

A scientist says that rocking chairs make people deaf and near sighted. He has evidently observed two persons occupying the same rocker.

There is a slight difference between a man and a camel—a camel can work eight days without drinking, and a man can drink eight days without working.

A young man was fined for kissing a girl "in the face of her protest." If he had kissed her where he ought, she would have not prosecuted him. No girl likes to be kissed in the wrong place.

A mathematician says that an engaged couple on an average have 360,000 kisses. This is appalling, and the way for a lover to escape such a tedious thing is to get married in a hurry: this will generally stop kissing in great quantities.

ANOTHER AMATEUR GARDENER.

Boy—"Please will you give me some trouser patterns for father to see?"

Shop Assistant—"Certainly; what kind does your father prefer?"

Boy—"Oh, father is not at all particular as to the patterns, so long as they are strong enough to hold up our creeper."

Indignation on the part of the assistant can better be imagined than described.

POOR PA!

A simple-minded youth was driving along a bush road with a cart piled high with hay. Just opposite a house by the roadside a wheel came off, and the load of hay topped over on to the track. The owner of the house came out to see what was the matter.

"That's a bad job," said he to the driver, who was sadly surveying the mess.

"Yes," said he, and added, "Pa will be mad."

"Never mind," said the other. "Come in and have a drink and we will fix it up."

The young man hesitated, but at last went in, remarking once more, "My! Pa will be mad."

After a few drinks and a smoke they sallied forth to put matters right; the youth ejaculating once more as he gazed at the wreck—"My word! Pa will be mad."

"Oh, never mind pa," said the other "he isn't here."

"Dunno so much about that," said the son. "He was riding on top."

A RABBIT YARN.

Some few years ago a certain light house keeper near Yarmouth, on getting settled, thought it would be advantageous to him to turn a bit of the sand warren attached to the premises into a vegetable garden. Accordingly he set to work, and having delved it into the semblance of a garden patch, proceeded to plant it. For the first few days the young vegetables promised to flourish in their new quarters, and the "bunnies" on the adjacent warren had not got over their surprise and the fear of committing trespass. But one morning the light-house-keeper came to his garden to find that something in the nature of a blight, had visited one corner during the night. Somewhat puzzled, he replanted the ground, but next night more of his tender vegetables vanished, and he was still further puzzled. He dug, manured, and planted again, but with like result. He asked the village folk, who smiled, and naturally suggested rabbits. The keeper watched and found it was so. He complained to the lord of the manor and asked him to keep off the rabbits.

"If you wish to grow greenstuffs," said the lord of the manor, "fence your garden in yourself."

This the keeper did not see his way to do, but set to work on a much harder if less expensive plan. He dug a trench two feet wide and three feet in depth all round the garden, hoping that it would be a sufficient barrier against the marauding rodents. One morn after he had completed his trench he visited it, and to his great surprise found a large number of rabbits prisoners therein. They had got it but could not get out. These he managed to kill and find a market for.

"All right!" said the lighthouse-keeper, "this'll do! it's better than a fence."

And he managed to dispose of 700 rabbits before the lord of the manor discovered his loss, and the cause of the cessation of complaints. The lord was one day surveying his warren when he espied the keeper acting in a strange and excited manner, and came up the edge of the trench. "Why man! What's this?" he gasped. "You're clearing my warren?"

"I'm content," replied the lighthouse keeper, still knocking rabbits on the head, as he pushed a big box in front of him and stowing the rabbits in as he went. "If you want to keep the rabbits, you'd better fence them in!"

And so the lord of the manor did, for he immediately ordered some rolls of wire-netting, burying three feet of it below the surface, and raising it several feet above, all round the garden.

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